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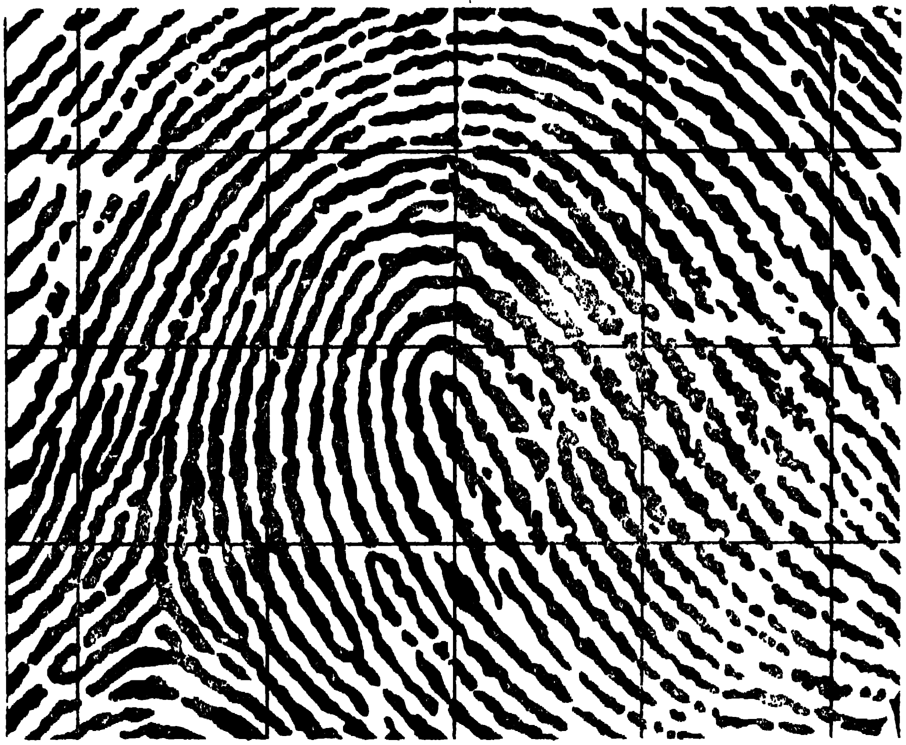

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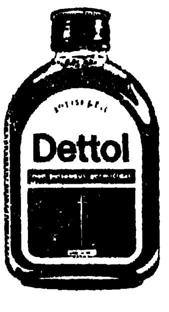

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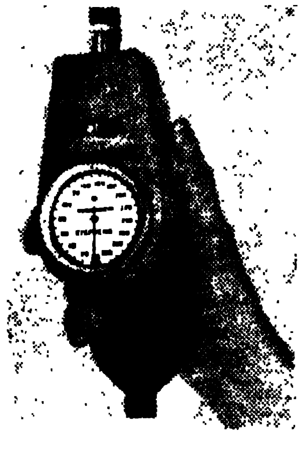

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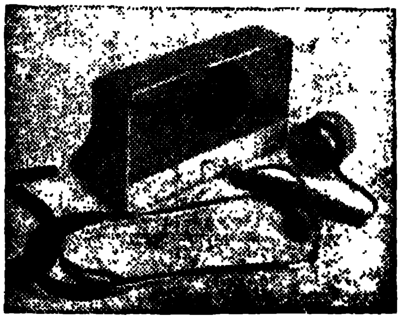

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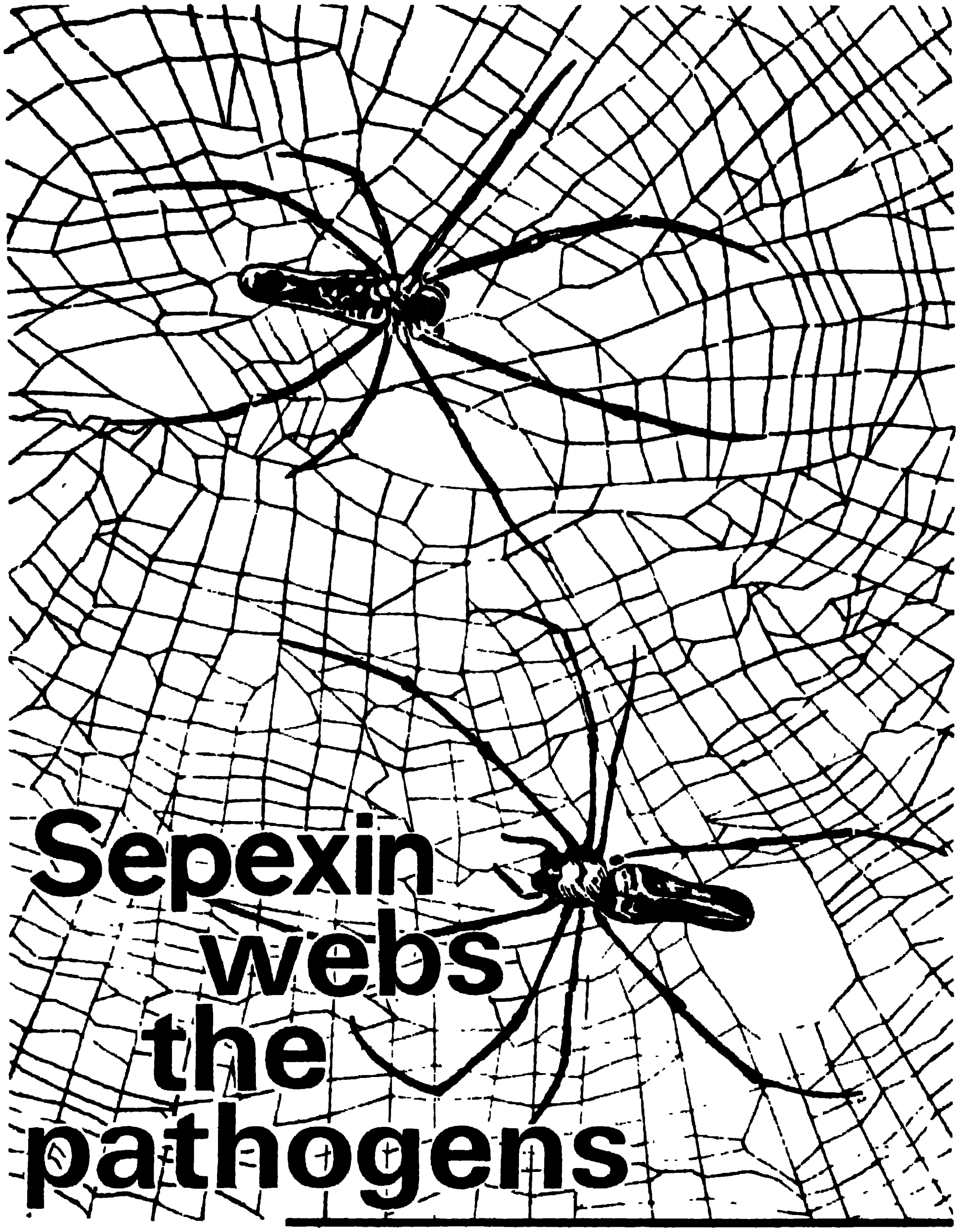

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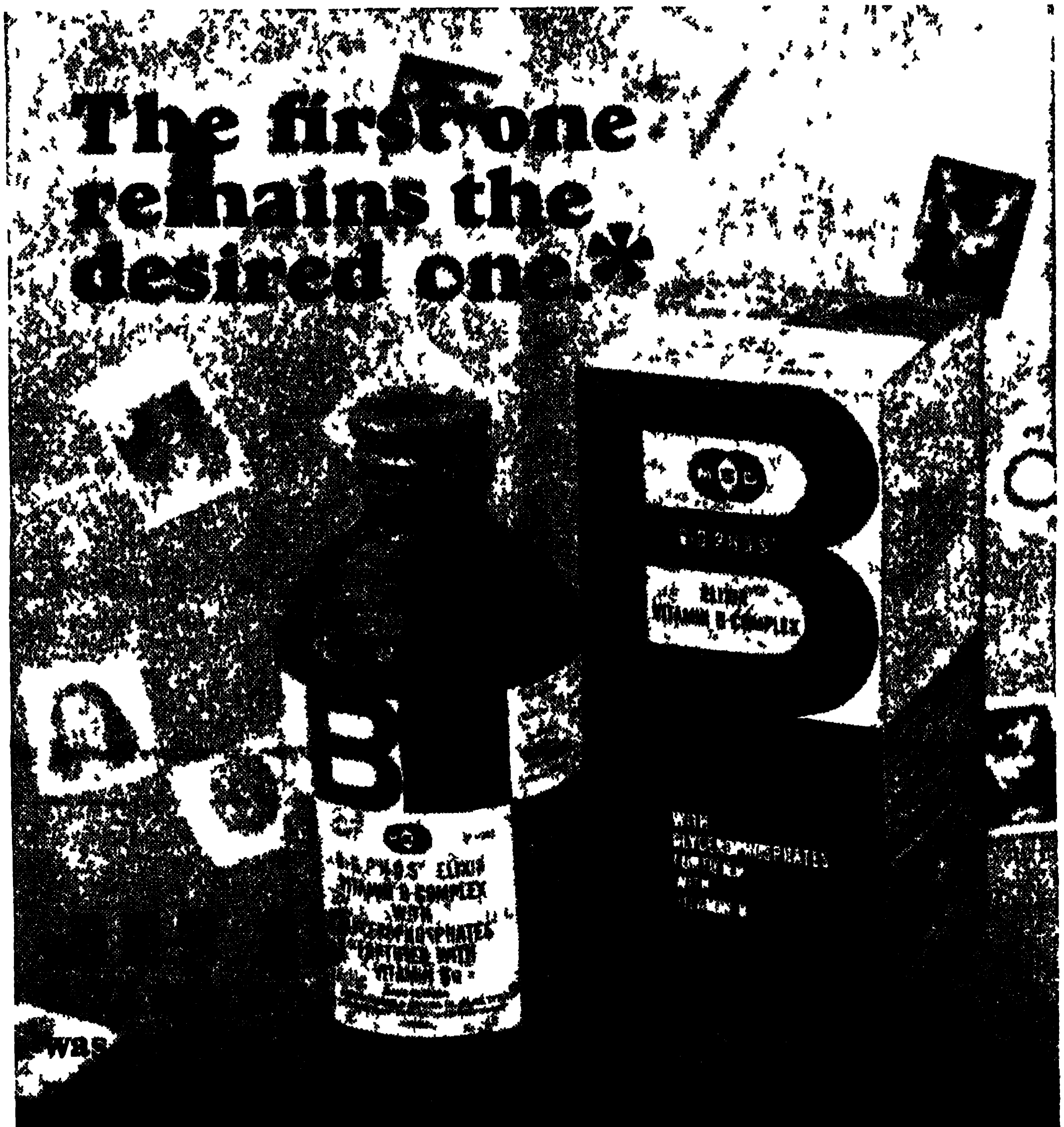

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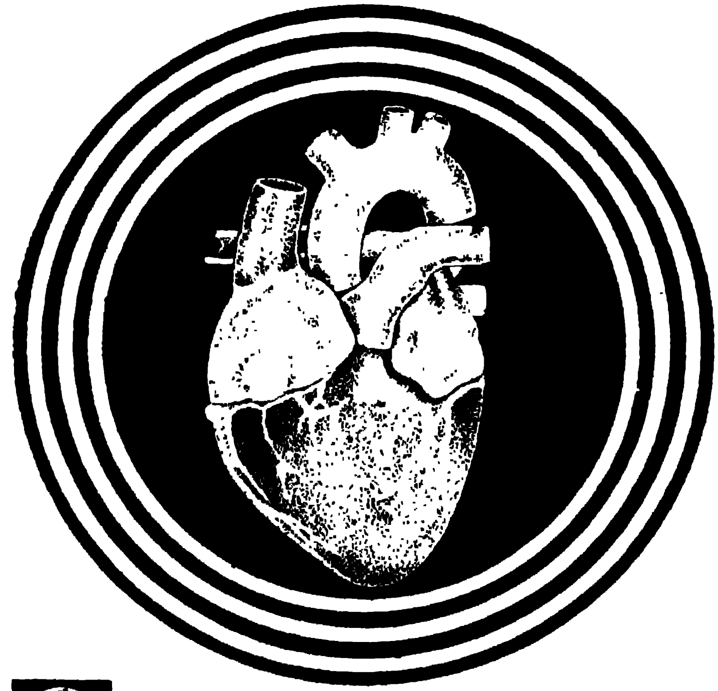

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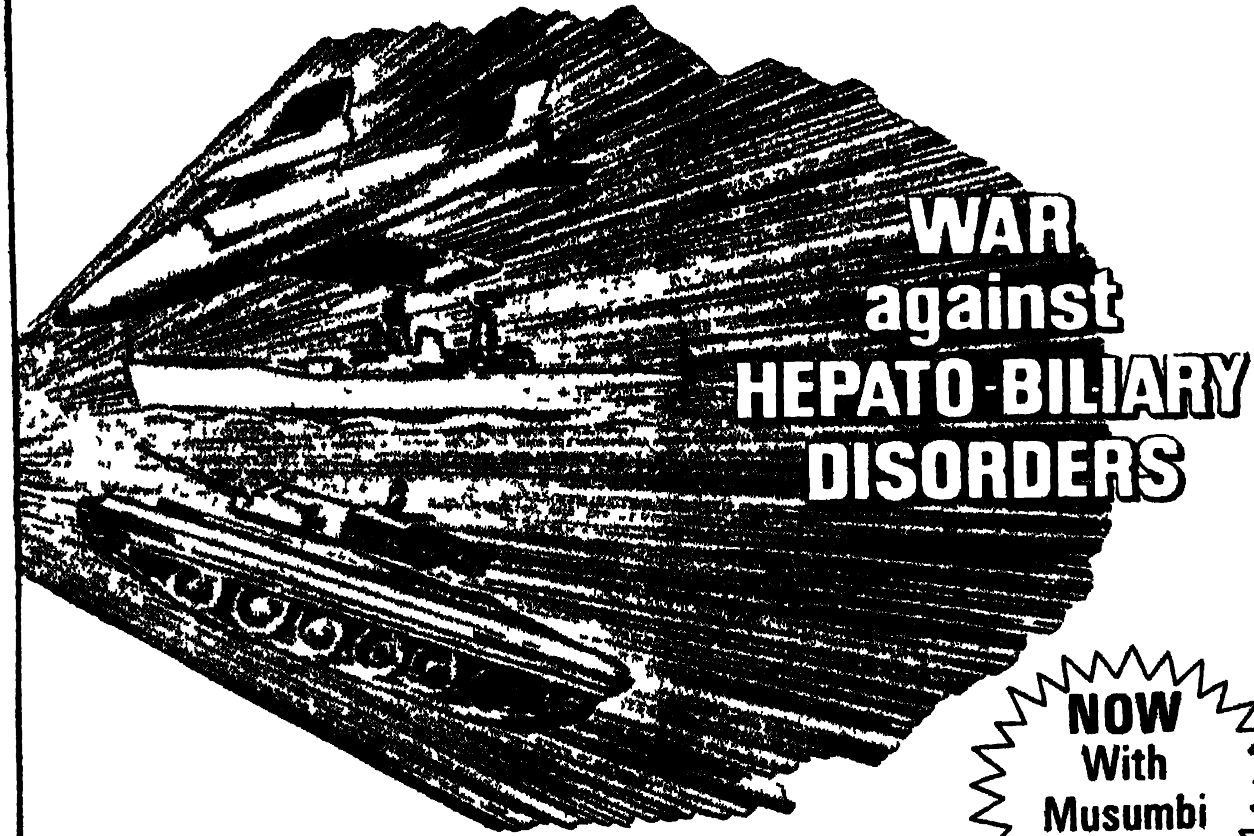

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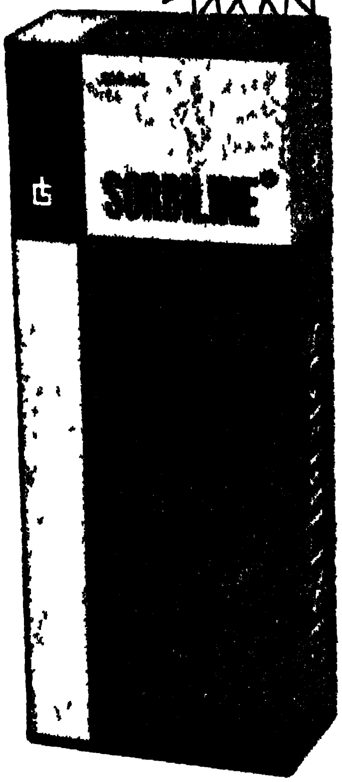

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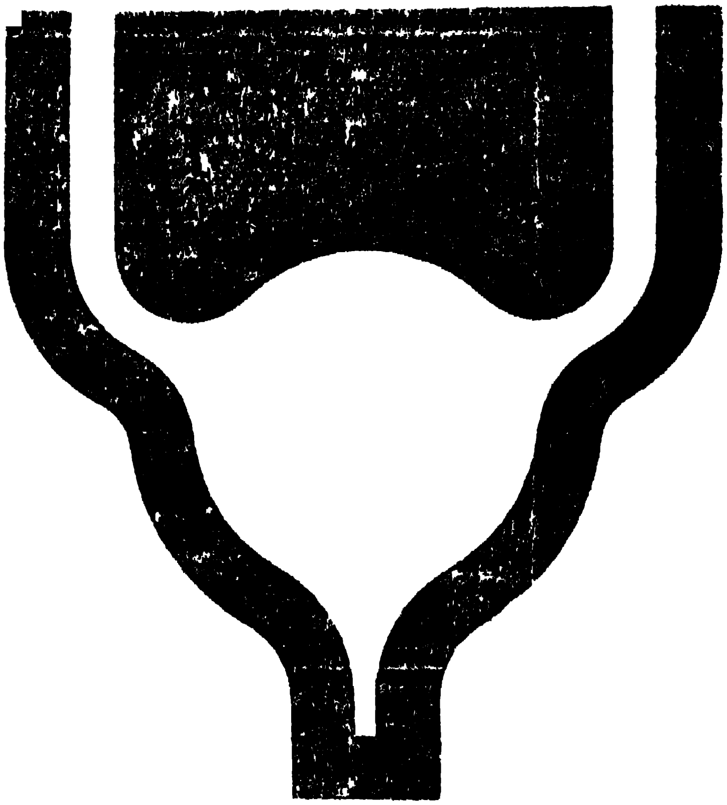

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ORIGINALS AND PAPERS

1

Bacteriological Study of Postoperative Wound Infections

U. SATYAVANI*, M. KOTESWARA RAO**, C. S. BHASKARAN***

[Received for publication May 4, 1976]

Despite advances in antimicrobial therapy and development of improved techniques in surgery, postoperative wound infections continue to occur. The advent of sulphonamide and penicillin era appeared at first to be the final answer to this problem, but this early hope has not been fulfilled because some of the bacteria acquired resistance to these antimicrobial drugs (Barber and Rozwadowska-Dowzenko, 1948). In order to deal with the resistant strains of micro-organisms, administration of broad spectrum antibiotics came to the forefront. But the universal use of these antibiotics both for prophylaxis and treatment has produced not only changes in the bacterial flora of man but also an alteration in the incidence of various causative agents of postoperative wound sepsis (PHLS Report, 1960; Wasek *et al.*, 1965; Williams *et al.*, 1966; Singh *et al.*, 1967).

In modern times, the demands of complicated and lengthy surgical procedures gave bacteria more opportunities of access into the wounds. The use of total body irradiation or cytotoxic agents, overcrowding in hospitals, shortage of nursing staff, use of operating rooms for long hours with little or no interval between the cases have all added to the problem of postoperative wound infections.

With this background in view, the present investigation was undertaken to study the role of certain factors in causation of sepsis by analysing the relationship between the degree of sepsis on one hand and the type of wound, time of onset of sepsis and the nature of infection with reference to bacterial flora on the other and to study the bacterial flora and their susceptibility to antibiotics in common use.

MATERIAL AND METHOD

The study group comprised 100 randomly selected patients who underwent surgery in King George Hospital, Visakhapatnam. All these patients received some antibiotic or other as a prophylactic measure either pre-or postoperatively before sepsis was noted. They were classified into "clean", "potentially infected" and "frankly infected" groups according to the criteria laid down by Howe (1954), Jefferey and Sklaroff (1958) and Caswell *et al.* (1960).

For evidence of sepsis, the condition of the wound was noted at the time of first change of dressing, at the time of removal of sutures and on each subsequent dressing day. The degree of sepsis was assessed by inflammatory reaction in and around the margin of the wound. The degree of sepsis was labelled "severe" and "trivial" according to the criteria laid down by Robertson (1958), Caswell *et al.* (*loc. cit.*) and Wasek *et al.* (*loc. cit.*). The relationship between the various factors involved in postoperative infections was analysed statistically on the basis of chi-square test (Hill, 1961). "P" value of $\angle$ 0.05 was taken as the conventional level of significance to assess their role in causation of sepsis.

---

*M.D., Assistant Professor, Institute of Preventive Medicine, Hyderabad

**M.D., Associate Professor of Microbiology, Osmania Medical College, Hyderabad

***M.D., F.A.M.S., M.R.C. Path., Professor of Microbiology, S. V. Medical College, Tirupati

The material for bacteriological examination was collected either by swabbing the infected area or by collecting the discharge from the wound. The material, thus collected in duplicate, was used for direct smear examination by Gram's method and for cultural examination. Cultures were carried out immediately on collection of the material by inoculating the following media: Two plates of blood agar, one incubated aerobically and the other anaerobically, a plate of MacConkey's agar and a Robertson's cooked meat medium. Appropriate selective media were also inoculated as and when required depending upon the findings of smear examination. All the media were incubated at 37°C and examined at the end of 24 and 48 hours' incubation. The organisms, thus grown, were identified on the basis of their morphology, cultural characteristics and biochemical reactions according to the standard methods (Cruickshank, 1965). Coagulase positive staphylococci were phage typed at the National Institute of Communicable Diseases, New Delhi.

The isolates were tested for their antibiotic sensitivity by filter paper disc method (WHO, 1961). The following are the concentrations of the drugs used per disc: Benzyl penicillin --1 unit; streptomycin 10 µg.; chloramphenicol --52 µg.; tetracycline 25 µg.; oxytetracycline 25 µg., chlortetracycline 25 µg.; demethylchlortetracycline—25 µg. and erythromycin—10 µg.

OBSERVATIONS

Operation and categorisation of wound Table 1 shows the nature of operations performed on these 100 patients and the categorisation of wounds into clean, potentially infected and frankly infected groups.

Degree of sepsis and nature of wound - Table 2 shows the relationship between degree of sepsis and the nature of wound.

Onset of infection The relationship between degree of sepsis and the day of onset of infection is shown in Table 3. Severe type of infection occurred mostly when the sepsis was noted in the 1st week after the operation and there has been a gradual decline in the incidence in 2nd and 3rd weeks with no severe infection occurring after the 3rd week of the operation. As against these findings, gradual increase was found in the incidence of trivial infections as the interval between the day of operation and appearance of sepsis became longer.

Degree of sepsis and nature of infection—The relationship between degree of sepsis whether trivial or severe and the nature of infection whether single

TABLE 1—SHOWING INCIDENCE OF NATURE OF OPERATIONS PERFORMED FOR THE CASES UNDER STUDY

Nature of operations and type of wounds	No. of cases	
Clean:		
Laparotomy	5	
Mastectomy	3	
Bone transplantation	3	
Craniotomy	3	
Herniorrhaphy	2	
Thyroidectomy	1	
Miscellaneous	5	22
Potentially infected:		
Operation on scrotum and testis	19	
Amputations	10	
Gut resections and gastrojejunostomies	10	
Suprapubic cystostomies	6	
Caesarean sections	5	
Appendicectomies	4	
Duodenal perforation	2	
Prostatectomy	1	
Miscellaneous	11	68
Frankly infected:		
Mastoidectomy	6	
Rib resection for empyema	1	
Laparotomy for pelvic peritonitis	1	
Laparotomy for pelvic retrovertebral abscess	1	
Carbuncle excision	1	10
Total		100

TABLE 2—SHOWING RELATIONSHIP BETWEEN THE TYPE OF WOUND AND DEGREE OF SEPSIS

Degree of sepsis	Nature of wound			Total
	Clean	Potentially infected	Frankly infected	
Severe	9(40.9%)	24(35.3%)	9(90%)	42
Trivial	13(59.1%)	44(64%)	1(10%)	58
Total	22	68	10	100

$\lambda^2=11.88$ N=2 P<0.01

TABLE 3—SHOWING RELATIONSHIP BETWEEN THE DAY OF ONSET OF INFECTION AND DEGREE OF SEPSIS

Degree of sepsis	Day of onset of infection				Total
	1st week	2nd week	3rd week	After 3rd week	
Severe	25(71.4%)	15(32.6%)	2(11.8%)	—	42
Trivial	10(28.6%)	31(67.4%)	15(88.2%)	2(100%)	58
Total	35	46	17	2	100

$\lambda^2=23.42$ N=3 P<0.01

or mixed is shown in Table 4. It is observed that trivial infections (72 per cent) were more commonly associated with single infecting organism, whereas severe infections (56 per cent) were caused more frequently by more than one organism.

TABLE 4—SHOWING RELATIONSHIP BETWEEN THE NATURE OF INFECTION AND DEGREE OF SEPSIS

Degree of sepsis	Nature of infection				Total
	Single	Percentage	Mixed	Percentage	
Severe	14	28.0	28	56.0	42
Trivial	36	72.0	22	44.0	58
Total	50		50		100
	$\lambda^2=8$	N=1	P<0.01		

Organism A total of 160 strains of micro-organisms was isolated in the present study. Single infecting organism was isolated from 50 patients and from the remaining 50 cases more than one organism was isolated. The overall incidence of various micro-organisms and the distribution of different organisms in single and mixed infections are shown in Table 5.

TABLE 5—SHOWING INCIDENCE OF VARIOUS MICRO-ORGANISMS AND THE DISTRIBUTION OF ORGANISMS IN SINGLE AND MIXED INFECTIONS

Organisms isolated	Nature of infection		Total
	Single	Mixed	No. of cases
Ps. aeruginosa	14(28%)	30(27.3%)	44(17.5%)
Coagulase positive staphylococci	13(26%)	25(22.8%)	38(23.8%)
Esch. coli	10(20%)	21(19.1%)	31(19.4%)
Proteus species	5(10%)	13(11.8%)	18(11.3%)
Kl. aerogenes	4(8%)	12(10.9%)	16(10.0%)
Coagulase negative staphylococci	3(6%)	2(1.8%)	5(3.1%)
β—haemolytic streptococci	—	2(1.8%)	2(1.2%)
α—haemolytic streptococci	—	1(0.9%)	1(0.6%)
Non-haemolytic streptococci	1(2%)	3(2.7%)	4(2.5%)
Cl. tetani	—	1(0.9%)	1(0.6%)
Total	50	110	160

Phage type—The results of phage typing of coagulase positive staphylococci isolated in the present study is presented in Table 6. Of the 38 strains phage typed, 16 (42.1 per cent) were untypable, 6 (15.8 per cent) belong to group I, 4 (10.5 per cent) to group II, 7 (18.4 per cent) to group III and 5 (13.2 per cent) to miscellaneous group.

TABLE 6—SHOWING RESULTS OF PHAGE TYPING OF COAGULASE POSITIVE STAPHYLOCOCCI

Phage group	Total No. of strains	Type distribution	
		Phage types	No. of strains
Group I	6(15.8%)	80	4
		29/52/52A/80	1
		52/52A/80	1
Group II	4(10.5%)	71	4
Group III	7(18.4%)	47/53/75/83A	2
		47/53/54/75/83A	2
		53/54/75/83A	1
		6	2
Unclassified	5(13.2%)	187	5
Untypable	16(42.1%)	—	—

Sensitivity The overall antibiotic sensitivity pattern of 159 strains isolated excluding one strain of *Cl. tetani* is presented in Table 7.

The sensitivity pattern of Gram-positive and Gram-negative groups of organisms is shown in Fig. 1.

The results revealed that chloramphenicol (86 per cent) and erythromycin (78 per cent) were the most effective drugs against Gram-positive organisms isolated in the present study and the majority of these strains were also found to be resistant to penicillin and streptomycin. Among the Gram-negative organisms, the predominant species *Ps. aeruginosa* was highly resistant to all the 8 antibiotics tested with few exceptions. Strains of *Esch. coli* were mostly susceptible to chloramphenicol (54.8 per cent), demethylchlortetracycline (51.6 per cent) and streptomycin (35.5 per cent). Similar pattern of sensitivity was also noted with reference to the strains of proteus and klebsiella species.

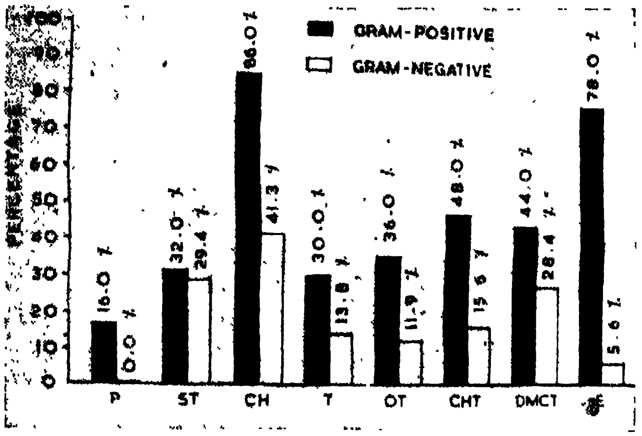
DISCUSSION

The present investigation covered a random selection of 100 patients suffering from postoperative wound sepsis. Among this random selection of cases, potentially infected wounds formed the largest group with 68 cases, suggesting the possibility of higher incidence of sepsis in this category

TABLE 7—SHOWING OVERALL ANTIBIOTIC SENSITIVITY PATTERN OF THE ISOLATES IN THE STUDY

Organisms	No. of strains tested	Antibiotics							
		P	S	Ch	T	Ot	Cht	DMCT	E
Coagulase positive staphylococci	38	6 (15.8%)	14 (36.9%)	33 (86.8%)	13 (34.2%)	15 (39.2%)	19 (50%)	20 (52.6%)	29 (76.3%)
Coagulase negative staphylococci	5	0	0	3 (60%)	1 (20%)	2 (40%)	3 (60%)	1 (20%)	3 (60%)
Streptococci	7	2 (28.6%)	2 (28.6%)	7 (100%)	1 (14.3%)	1 (14.3%)	2 (28.6%)	1 (14.3%)	7 (100%)
Ps. aeruginosa	44	0	3 (6.8%)	4 (9.2%)	1 (2.3%)	0	1 (2.3%)	1 (2.3%)	1 (2.3%)
Esch. coli	31	0	11 (35.5%)	17 (54.8%)	6 (19.4%)	6 (19.4%)	7 (22.6%)	16 (51.6%)	3 (9.7%)
Proteus species	18	0	13 (72.3%)	13 (72.3%)	3 (16.7%)	0	2 (11.1%)	7 (38.9%)	2 (11.1%)
Kl. aerogenes	16	0	5 (31.3%)	11 (68.8%)	5 (31.3%)	7 (43.8%)	7 (43.8%)	7 (43.8%)	0
Total	159	8 (5%)	48 (30.2%)	88 (55.4%)	30 (18.5%)	31 (19.5%)	41 (25.8%)	53 (33.3%)	45 (28.3%)

P—Penicillin; S—Streptomycin; Ch—Chloramphenicol; T—Tetracylcine; Ot—Oxytetracycline; Cht—Chlortetracycline; DMCT—Demethylchlorteracycline; E—Erythromycin



IG. 1—SHOWING SENSITIVITY PATTERN OF GRAM-POSITIVE AND GRAM-NEGATIVE ORGANISMS

-PENICILLIN; ST-STREPTOMYCIN; CH-CHLORAMPHENICOL; T-TE-RACYCLINE; OT-OXYTETRACYCLINE; CHT-CHLORTETRACY-LINE; DMCT-DEMTHYLCHLORTETRACYCLINE; E-ERYTHROMYCIN

of wounds. This was followed by 22 clean wounds and 10 frankly infected wounds. According to Jefferey and Sklaroff (*loc. cit.*), potentially infected wounds constitute four times more than that of clean wounds in postoperative sepsis. Similar high incidence of infection in potentially infected wounds was also observed by other workers (Rountree *et al.*, 1960; Caswell *et al.*, *loc. cit.*).

Analysis of the degree of sepsis in the present study in relation to the nature of wound (Table 2) revealed that trivial infection was frequent among clean and potentially infected groups (59.1 per cent and 64.7 per cent respectively) while severe infection was common (90 per cent) in frankly infected group. This association between trivial infection and clean and potentially infected wounds on the one hand and severe sepsis and frankly infected group on the other was found to be significant ($P<0.01$). Meleney (1935), Clarke (1957) and Jefferey and Sklaroff (*loc. cit.*) also noted similar relationship between trivial infection and clean and potentially infected wounds. Meleney (*loc. cit.*) reported an incidence of 28.6 per cent severe infection and 71.4 per cent trival infection in 1925, an incidence of 25 per cent severe infection and 75 per cent trival sepsis in 1933 from among the clean postoperative wounds. Clarke (*loc. cit.*) observed an incidence of 53.3 per cent trivial infection and 46.7 per cent severe sepsis occurring in both clean and potentially infected groups put together. Jefferey and Sklaroff (*loc. cit.*) reported 62.4 per cent trivial and 37.6 per cent severe infections in cases of clean wounds and 62 per cent and 38 per cent trivial and severe sepsis respectively in potentially infected wounds. On the contrary, there are certain reports where the incidence of severe infection was found to be higher among the clean and potentially infected wounds than trivial sepsis (Howe, *loc. cit.*; Wasek *et al.*, *loc. cit.*). Howe (*loc. cit.*) reported an incidence of 63.8 per cent severe sepsis and 37.2 per cent trivial infection among clean wounds, whereas Wasek *et al.*

(*loc. cit.*) reported 55.5 per cent severe infection and 44.5 per cent trivial sepsis among potentially infected wounds. These conflicting reports suggest that the degree of sepsis in relation to the nature of wound may vary, probably depending upon various other factors like sterilisation methods, operating techniques and pre-and postoperative care followed in different places.

The study of the relationship between the day of onset of infection and the degree of sepsis (Table 3) revealed significant association between these two factors ($P<0.01$). Williams *et al.* (*loc. cit.*) showed that all the infections that occurred in the 1st week of operation suggested the operation theatre as the source of infection while sepsis occurring later was often thought to indicate infection from the ward during the postoperative period. According to Gillespie *et al.* (1959), theatre infection was more likely to produce severe type of sepsis than infection from the ward. Based on these criteria i.e., the time of onset of infection and the degree of sepsis, several workers (Clarke, *loc. cit.*; Shooter *et al.*, 1958; Bassett *et al.*, 1963) have tried to establish the sources of infection. In the present study, based on the same criteria, it can be presumed that of the 42 cases of severe infection, 25 (59.5 per cent) cases that occurred in the 1st week after the operation were theatre infections and the rest were from the ward.

Occurrence of wounds infected with single microorganism and more than one organism was found to be equal in the present study (Table 4). By considering the relationship between the degree of sepsis and the nature of infection, it is observed that single infections were mostly trivial in nature while severe sepsis was predominantly associated with mixed bacterial flora ($P<0.01$) Correspondingly, Clarke (*loc. cit.*) reported that the minor infection of postoperative wounds was usually caused by a single infecting agent like coagulase negative staphylococci.

An analysis of the bacterial flora in the present study revealed that *Ps. aeruginosa* was the predominant species in postoperative wound infections. Review of the literature showed conflicting reports on the incidence of this organism in this group of infections. Rountree *et al.* (*loc. cit.*), Forbes and Eberd (1961), Wasek *et al.* (*loc. cit.*), Singh *et al.* (*loc. cit.*) and Rao and Harsha (1975) reported a low incidence of *Ps. aeruginosa* infections, whereas other workers (Barber, 1961; Ayliffe *et al.*, 1965; Phillips and Spencer, 1965; Tinne *et al.*, 1967) reported outbreaks of postoperative infections caused by this organism incriminating shaving brushes, eye drops and anaesthetic equipment as the sources of infection.

Coagulase positive staphylococci was found to be the next predominant species in this series. But the published reports show that this organism was the commonest isolate encountered in their cases (Clarke, *loc. cit.*; PHLS Report, *loc. cit.*; Chatterjee and Aikat, 1964; Wasek *et al.*, *loc. cit.*; Singh *et al.*, *loc. cit.*). The phage typing of coagulase positive staphylococci revealed that the majority (42 per cent) were untypable and this observation is in agreement with that of Williams *et al.* (*loc. cit.*) who also observed that untypable strains were common among staphylococci isolated from postoperative wound infections. Of the typable strains, phage group III was most frequently encountered and other workers have also reported similar findings (Chatterjee and Aikat, *loc. cit.*; Williams *et al.*, *loc. cit.*; Chatterjee *et al.*, 1968).

The other Gram-negative organisms isolated in the present study are, in the descending order of frequency, *Esch. coli* (19.4 per cent), proteus species (11 per cent) and *Kl. aerogenes* (10 per cent). Considering all of them together, these Gram-negative bacteria formed the largest group and this high incidence can be explained on the basis of larger number of potentially infected wounds included in the study. Similar observations were also made by other workers (PHLS Report, *loc. cit.*; Wasek *et al.*, *loc. cit.*; Singh *et al.*, *loc. cit.*).

The other Gram-positive organisms found in the present investigation are coagulase negative staphylococci and different species of streptococci in small numbers. Clarke (*loc. cit.*) and Singh *et al.* (*loc. cit.*) reported mild forms of infection in postoperative wounds caused by *Staph. albus*. Similarly, Rountree *et al.* (*loc. cit.*) and Krol (1961) reported trivial infections caused by different species of streptococci. The low incidence of these organisms could be explained by the fact that they being highly susceptible to antibiotics, cross infections in surgical wards are being prevented to a large extent by aseptic methods and by the use of penicillin and other antibiotics in the routine.

In the present series, one case of tetanus is reported and this has occurred in a patient who underwent an operation for cancer of cervix and body of the uterus. Similar reports on the incidence of postoperative tetanus are not wanting in the literature (Murthi *et al.*, 1961; Vakil *et al.*, 1964; Saxena *et al.*, 1966).

The antibiotic sensitivity pattern of the Gram-positive and Gram-negative organisms showed that Gram-positive organisms are far more susceptible to antibiotics than Gram-negative species. Of the drugs tested, chloramphenicol is found to be the most effective agent against both Gram-positive and Gram-negative organisms. This finding is in conformity with other workers (Barber and Burston, 1955; Wolma and Lynch, 1959; Wasek *et al.*, *loc. cit.*; Singh *et al.*, *loc. cit.*). The next useful drug in Gram-positive infections is erythromycin followed by tetracycline, streptomycin and the least useful being penicillin. Against Gram-negative organisms, demethylchlortetracycline and streptomycin are found to be alternative drugs of choice. But *Ps. aeruginosa,* the most frequently encountered isolate in the present study, is found to be highly resistant to all the antibiotics tested. This organism is well known for its resistance to a wide range of antibiotics (Wasek *et al.*, *loc. cit.*; Cruickshank, *loc. cit.*; Singh *et al.*, *loc. cit.*).

SUMMARY

One hundred cases of postoperative wound infections were investigated to study the relationship between degree of sepsis and the type of wound, time of onset of infection and the nature of infection and to study the bacterial flora and their susceptibility to antibiotics in common use.

Trivial infections occurred more frequently among clean and potentially infected wounds, and severe sepsis in frankly infected wounds. Majority of severely infected wounds were seen in the 1st week of postoperative period, whereas trivial sepsis occurred after the 1st week. Single infecting organisms were found to be responsible for trivial sepsis whereas infection with more than one organism was associated frequently with severe type of sepsis. Statistical analysis of the relationship between degree of sepsis on one hand and the type of wound, day of onset of sepsis and the nature of infection on the other, showed significant association.

Bacteriological study yielded 160 micro-organisms and of them 50 strains were isolated from patients suffering from infection caused by a single organism and the rest from mixed infections. *Ps. aeruginosa* was the predominant species followed by coagulase positive staphylococci, *Esch. coli*, proteus species, klebsiella, coagulase negative staphylococci and different species of streptococci. *Cl. tetani* was isolated in one case.

The phage typing of coagulase positive staphylococci revealed that a large number of straine were untypable. Among the typable strains, phage group III was frequently encountered followed by group I, unclassified group and group II.

Antibiotic sensitivity pattern of the isolates revealed that chloramphenicol is the drug of choice against both Gram-positive and Gram-negative organisms. Next to chloramphenicol, erythromycin is found to be the effective agent against Gram-positive organisms and demethylchlortetracycline and streptomycin against Gram-negative species.

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2

Oral Chloroquine Therapy in Premature Beats

AJIT SINGH*, NARINDER SINGH**
JASBIR SINGH***

[Received for publication April 17, 1976]

Synthetic antimalarial drugs including the 4-aminoquinolines have been found effective in clinical management of diseases other than plasmodial infection. Although the precise mechanism of their non-specific action in many diseases still remains unknown, they seem to have occupied a significant place in current therapeutics.

Chloroquine has also been used in management of cardiac arrhythmias to raise electric fibrillation threshold of cat atrium (Bruno *et al.*, cited by Sollmann, 1959) and to decrease excitability and conductivity of the ventricles (Hess, 1954; Sanghvi, 1956). In view of remarkable successes in experimental animals, one can find some justification in a further trial of chloroquine in cases of cardiac arrhythmias. It has successfully been used to abolish ventricular premature beats (Sanabria, 1955; Burrell and Martinezo, 1958), atrial fibrillation (Sanghvi, 1956), atrial tachycardia, premature atrial ectopics (Burrell and Martinezo, *loc. cit.*) and ventricular tachycardia (Burrell and Martinezo, *loc. cit.*, Malhotra and Krishen, 1968). However, Bellet (1963) found the drug less dependable than quinidine in abolishing or suppressing ectopic rhythms and reported the emergence of tolerance limiting its use over long periods. Hence, the role of chloroquine as an anti-arrhythmic agent is still controversial. Its successful use in abolishing resistant ventricular tachycardia in a patient prompted the study of the efficacy of chlroquine sulphate in cardiac arrhythmias. An attempt has been made in this communication to evaluate chloroquine sulphate in the management of cardiac ectopic beats.

MATERIAL AND METHOD

Fifty patients having ectopic beats of varied aetiology have been studied. Twenty-seven cases were inpatients while 23 were outpatients (35 males and 15 females). The age ranged from 14 to 70 years. The presenting symptoms were palpitation (34 cases) precordial discomfort or thumping (21), weakness and tiredness (16) and sleep disturbance (5).

A thorough clinical check up, history of precipitating cause, if any, a routine baseline 12-lead electrocardiogram and other relevant investigations were undertaken.

Six or more missing beats per minute were classified as multiple ectopics and less than this number as occasional ectopic.

Chloroquine sulphate tablet containing 0.15 g. of the basic salt was used orally in doses of 2 to 4 tablets per day depending on occasional or multiple nature of the ectopic beats. The drug was given for a varying period of 4 days to 3 weeks. The patients were followed up for one to 20 weeks.

When the patients showed a positive response to the drug, the dose was gradually tapered off and omitted over a period of 3 to 4 days. Twice a day dosage schedule was used for occasional ectopics while the other dosage schedules were for multiple extrasystoles. The higher doses also elicited tolerance of the drug.

The criteria for assessment of the results of therapy were as follows:

Excellent—Return of regular sinus rhythm and no recurrence on stoppage of drug for 4 weeks. Good—Return of regular sinus rhythm but recurrence on stoppage of drug. Moderate—Reduction in the number of ectopic beats and maintenance at the same level on stoppage of the drug. No response.

OBSERVATIONS

Age and sex—The age ranged from 14-70 years. There were 35 males and 15 females.

Extrasystoles—The incidence of types of extrasystoles is shown in Table 1.

TABLE 1—SHOWING TYPE OF EXTRASYSTOLES

Types of extrasystoles	No. of cases	
	Ventricular	Supraventricular
Occasional	5 (Fig. 1)	4
Multiple/Multifocal	22 (Fig. 2)	9* (Fig. 3)
Bigeminy	6	1*
Quadrigeminy	3	—
Total	36	14

*One case each had nodal extrasystoles

Aetiology—The incidence of aetiological factors is shown in Table 2.

Other associated diseases which could act as contributory factors in causation of extrasystoles were diabetes mellitus (2 cases), anaemia (5 cases), bronchitis (4 cases) and urinary infection (1 case).

Response to therapy—The incidence of response to chlorquine sulphate therapy in premature cardiac beats is shown in Table 3.

Department of Medicine, Medical College, Amritsar (Punjab)
*M.D., F.C.C.P. (USA), M.A.M.S., Professor of Medicine
**M.B.B.S., M.R.C.P. (UK), Ex-Postgraduate Student in Medicine
***M.B.B.S., M.D., Ex-Research Scholar

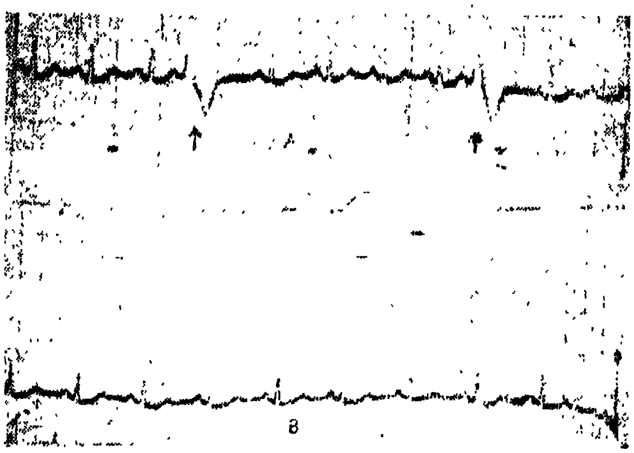

FIG. 1—SHOWING OCCASIONAL VENTRICULAR EXTRASYSTOLE (A) AND NORMAL SINUS RHYTHM (B)

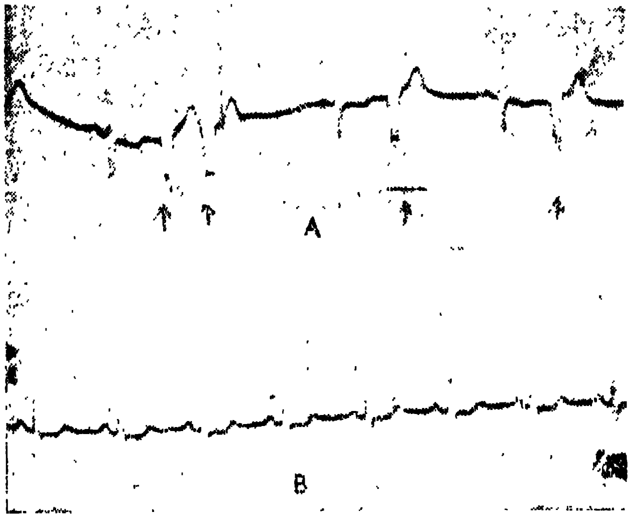

FIG. 2—SHOWING MULTIPLE MULTIFOCAL VENTRICULAR EXTRASYSTOLE (A) AND NORMAL SINUS RHYTHM (B)

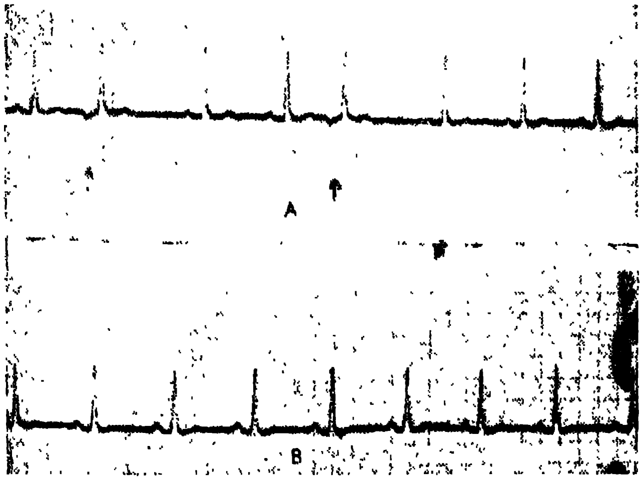

FIG. 3—SHOWING NODAL EXTRASYSTOLE (A) AND SINUS RHYTHM (B)

TABLE 2—SHOWING INCIDENCE OF AETIOLOGICAL FACTORS

Cause	No. of cases	
	Ventricular extrasystole	Supraventricular extrasystole
Idiopathic	10	4
Atherosclerotic heart disease	18	5
Postoperative	1	1
Hypertensive heart disease	3	2
Thyrotoxicosis	1	—
Allergic bronchitis	1*	2
Rheumatic heart disease	2	—
Total	36	14

*Also had nodal supraventricular extrasystoles

TABLE 3—SHOWING INCIDENCE OF RESPONSE TO THERAPY IN CARDIAC ARRHYTHMIAS

Response	Arrhythmias	
	Ventricular ectopic beat	Supraventricular ectopic beat
Excellent	18	10
Good	3	—
Moderate	10	4
No response	1	—
No follow-up (dropouts)	4	—
Total	36	14

The patients who obtained moderate relief or when the arrhythmia was of a persistent nature, other drugs such as procainamide, quinidine and phenytoin sodium were used with beneficial results.

The relationship of dosage schedule and duration of treatment is shown in Table 4.

TABLE 4—SHOWING CORRELATION OF TIME OF RESPONSE WITH DOSAGE SCHEDULE

Time of response (days)	Dosage schedule		
	Four times daily	Thrice daily	Twice daily
1—3	2 cases	10 cases	6 cases
4—7	3 cases	14 cases	4 cases
8—14	—	6 cases	—
No response	1 case	—	—
	6	30	10
Dropouts	—	2 cases	2 cases
Total	6	32	12

Side-effects—The incidence of side-effects is shown in Table 5.

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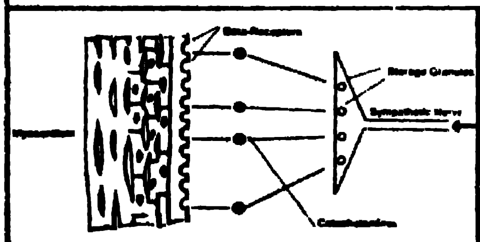
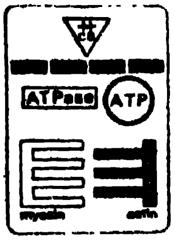


INHIBITION OF CATECHOLAMINE UPTAKE AT THE SYMPATHETIC NERVE ENDINGS IN THE MYOCARDIUM



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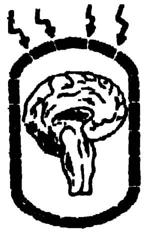

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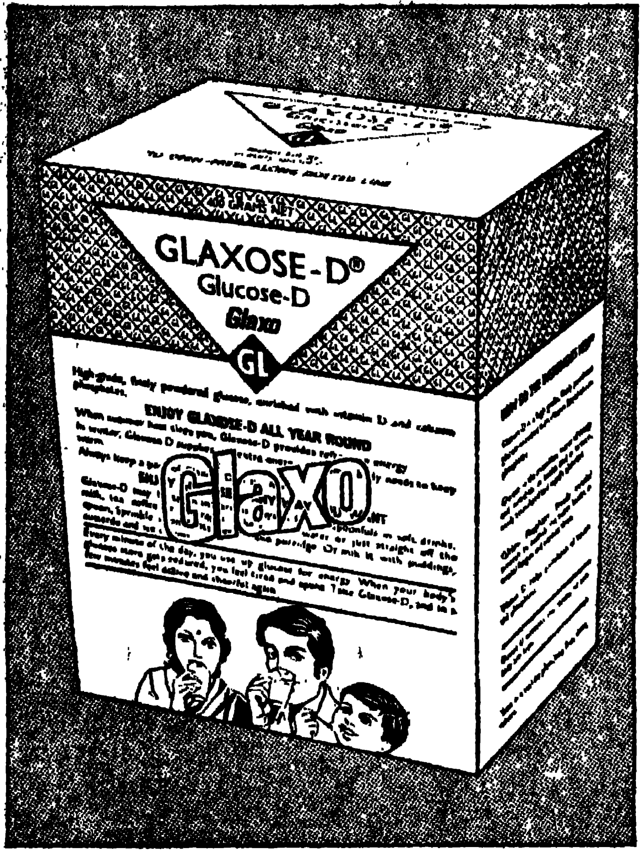

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TABLE 5—SHOWING INCIDENCE OF SIDE-EFFECTS

Side-effects	No. of cases
Nausea	13
Vomiting	5
Dizziness	5
Epigastric fullness	7
Loose motions	2
Diminished appetite	2
Dryness of mouth	1
Vertigo	7
Epigastric pain	5
Blurred vision	2
Tinnitus	1
Sleeplessness	2
Headache	5
Depression	1

DISCUSSION

Experimental studies in animals have demonstrated that chloroquine decreases the conductivity of the cardiac muscle (Hess and Schmidt, 1959). It exerts a more effective antifibrillatory action on the heart than quinidine. Clinically, the drug has been tried in the management of supraventricular paroxysmal tachycardia, multifocal ventricular extrasystoles and atrial fibrillation (Sanabria, *loc. cit.*; Sanghvi, 1956; Burrell and Martinezo, *loc. cit.*). The later authors used this drug in a case of paroxysmal ventricular tachycardia in whom reversion to normal rhythm was successfully achieved.

Chloroquine has been successfully used in a case of ventricular tachycardia, earlier found resistant to quinidine and procainamide by Malhotra and Krishen (*loc. cit.*). No such case was encountered in this series, but cases of ventricular premature beats (precursor of ventricular tachycardia) showed a favourable response. In clinical practice, a physician may face a situation of refractoriness of this tachycardia to either quinidine or procainamide especially (Ballet, *loc. cit.*). Chloroquine can be considered as an alternative drug. Premature beats can be treated earlier in cases of ischaemic heart disease so as to prevent this dreadful complication of ventricular tachycardia with this safe and potent drug.

Eighteen cases of ventricular premature beats responded well to this drug. In 3 cases, extrasystoles disappeared but a recurrence was seen on follow-up when the drug was withheld for sometime. In 10 cases of this series, there was a reduction in number of extrasystoles but they persisted in spite of continuation of this therapy. The findings in the present series are in consonance with those of Sanabria (*loc. cit.*) and Burrell and Martinezo (*loc. cit.*). The partial relief in 10 cases may be explained on the basis of tolerance to the drug with subsequent lack of response.

Hess and Schmidt (*loc. cit.*) explained the mode of action of chloroquine in cardiac rhythm disorders by the depressive effect of the drug on resting excitability and a decrease in conduction velocity of the muscle with recovery from depression. Comparatively, quinidine showed little recovery. In rat heart experiments, chloroquine did not depress oxygen uptake and glucose utilisation (Hess, 1956; Hess and Schmidt, *loc. cit.*). Moreover, Sanabria *et. al.* (1959) found out that intravenous administration shows inhibition of succinic dehydrogenase in the conducting system in contrast to quinidine and procainamide, thus accounting for its antifibrillatory effect.

Burrell and Martinezo (*loc. cit.*), Sanabria (*loc. cit.*) and Chen and Chou (1959) considered chloroquine to be an effective agent in therapy of cardiac arrhythmias in general use and its indications are similar to quinidine with less of untoward and cardiotoxic effects. Only mild gastro-intestinal side-effects were observed. Trivial side-effects were also encountered but these were not seen after reducing the doses or stopping the drug in the present series. Hobbs and Sorsby (1959) observed visual disturbances and retinopathy after extensive therapy which disappeared after the drug was stopped. In this series, blurred vision was seen in 2 cases as a temporary phenomenon and normal vision was obtained after cessation of therapy. However, keratopathy, corneal infiltration, macular mottling, bulls eye, premaculopathy, transient loss of accommodation have been observed in cases receiving the drug on long term therapy (Arden and Kolb, 1966; Percival and Behrman, 1969).

Sanghvi and Mathur (1965) observed occasional electrocardiographic abnormalities e.g., T-wave inversion and ST-segment depression in left ventricular leads after 10 days of chloroquine therapy. Such changes were not observed in this series. This may be due to low dosage schedule as well as a short course of therapy in the present series.

Since chloroquine in low doses carries a minor risk of toxicity and has been found effective in control of atrial, nodal and ventricular extrasystoles, a plea is made for a further detailed evaluation of the drug in clinical practice.

SUMMARY

Fifty cases of ectopic beats of varied aetiology and origin have been studied. There were 27 inpatients and 23 outpatients. Oral chloroquine sulphate was administered in dose of 0.30-0.60 g. (one base) per day for 4-21 days depending on the individual requirements. There was reversion to

normal rhythm in 18 out of 36 cases of ventricular extrasystoles and 10 out of 14 cases of supraventricular ectopics after varying periods of treatment. The side-effects were minor and transitory. The drug is recommended for use and the need for further clinical trials is suggested.

ACKNOWLEDGMENT

The authos are thankful to M/s. May & Baker (India) Private Ltd., New Delhi, for the supply of nivaquine brand of chloroquine sulphate used in the trial and their Medical Consultant, Dr. V. S. Saxena, and Technical Representative, Mr. S. M. Bhushan, for extending full co-operation and assistance in completing this trial.

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3

Percutaneous Transhepatic Cholangiography

B. CHATTERJI*, P. MAJUMDAR**
S. MUKHERJEE***

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Often it is not possible to differentiate obstructive jaundice which needs surgical intervention for relief from the non-obstructive variety in which surgery is contra-indicated. Clinical evaluation and the battery of laboratory tests are not always helpful. Oral and or intravenous cholecystography are neither useful nor are they safe when the serum bilirubin level exceeds 3 mg./100 ml. The situation has not changed even after the advent of "four-day telepaque test" (Sutton, 1975) and "drip infusion cholangiogram".

MATERIAL AND METHOD

In this communication, results of percutaneous transhepatic cholangiography in 15 jaundiced patients are presented. Of the 15 patients 10 are males and 5 females and their age ranged between 35 and 62 years. All these patients had serum bilirubin above 12 mg./100 ml. This investigation was performed as an immediate pre-operative procedure and at the outset it was decided to explore all patients in whom obstruction would be demonstrated and to critically review the rest in whom examination would be unsuccessful.

Liver was punctured at a point 2.5 cm. below and to the right of xiphoid process. Lumbar puncture needle No. 18, sheathed in a polythene tube, was used. Not more than four attempts were made to cannulate a biliary radicle. After cannulation, bile was aspirated as much as possible, followed by the introduction of 10 ml. meglumine iothalamate, 60 per cent w/v. Films were taken both in supine and erect positions. Exploration was carried out in 14 cases. One patient (case 7) in whom the cannulation was unsuccessful was not explored.

OBSERVATIONS AND DISCUSSION

The results of percutaneous transhepatic cholangiography are shown in Table 1.

Percutaneous transhepatic cholangiogram (PTHC) was attempted in 15 patients in this series and was successful in 12 cases. The nature and the site of obstruction were clearly demonstrated. This examination, however, indicates only the proximal level of stricture and it was not possible to determine the extent of involvement of the malignant process distally. Sometimes, it is difficult to differentiate the benign from the malignant stricture. Delayed films (at 5 minutes and 10 minutes), taken in erect posture, were immensely helpful to sort out the problem. Sutton (*loc. cit.*) has observed, "failure to puncture a biliary radicle after three attempts is a fairly good evidence that hepatic ducts are not dilated and will suggest that jaundice is not obstructive in origin. An unnecessary laparotomy may thus be avoided". However, in 3 cases in this

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*M.S. (Cal.), F.R.C.R. (Eng.). Reader and Head of the Department of Radiology, R. G. Kar Medical College and Hospital, Calcutta

**F.R.C.S. (Eng. and Edin.), Associate Professor of Surgery, Calcutta National Medical College and Hospital, Calcutta

***F.R.C.S. (Eng.), Reader, Department of Surgery, I.P.G.M E. & R., Calcutta

TABLE 1—SHOWING THE RESULTS OF RADIOLOGICAL FINDINGS

Case No.	Name, age and sex	Radiological findings	Remarks
1	A.K., 35, M	Benign stricture (post-cholecystectomy) of the common bile duct (CBD)	Confirmed and repaired
2	N.N., 45, M	Malignant stricture of the CBD (Fig. 1)	Carcinoma pancreatic head
3	B.K., 52, M	Malignant stricture of the CBD	Carcinoma gall bladder, cystic duct and common bile duct
4	S.B., 56, F	Radiolucent calculus in CBD (Fig. 2)	Confirmed at operation
5	A.M., 41, M	Malignant stricture of the common hepatic duct (Fig. 3)	Confirmed at operation
6	S.B., 48, F	Malignant stricture of the CBD (Fig. 4)	Carcinoma gall bladder, cystic duct and common bile duct
7	K.K., 45, F	Failed	Not explored
8	S.R., 42, F	Benign stricture (postoperative) of the CBD	Confirmed and repaired
9	R.B., 55, M	Malignant stricture of the CBD	Carcinoma bile duct
10	S.S., 60, M	Failed	Carcinoma pancreatic head
11	B.D., 62, M	Malignant stricture of the CBD	Carcinoma common hepatic and bile duct
12	R.D., 40, F	Benign stricture (postoperative)	Confirmed and repaired
13	P.R., 46, M	Calculus in CBD	Confirmed
14	S.K., 52, M	Failed	Carcinma parcreatic head
15	B.M., 46, M	Malignant stricture of the CBD	Carcinoma bile duct

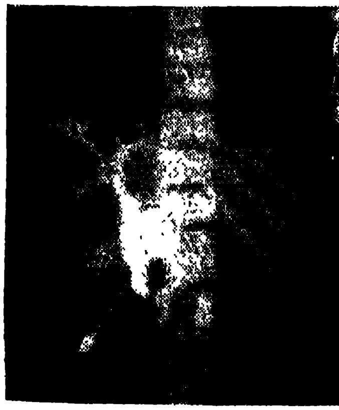

FIG. 1—SHOWING MALIGNANT STRICTURE OF CBD

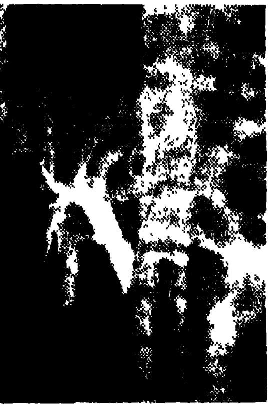

FIG. 2—SHOWING A RADIOLUCENT CALCULUS IN CBD

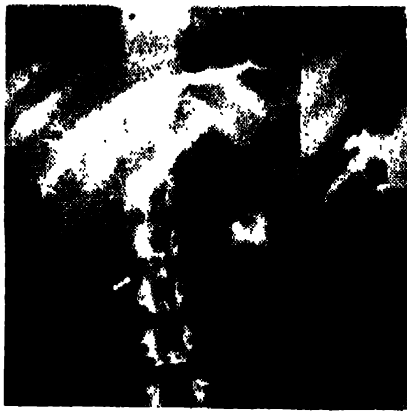

FIG. 3—SHOWING COMPLETE OCCLUSION OF COMMON HEPATIC DUCT

FIG. 4—SHOWING IRREGULAR LONG STRICTURE OF CBD

series the cannulation failed, of whom one patient (case 7) did not undergo laparotomy. Her jaundice gradually subsided and oral cholecystography performed at a later date showed no obstruction in the extrahepatic biliary tree. She was followed up for 2 years and jaundice has not recurred. Failed PTHC in her case was useful and laparotomy could be avoided. However, in two other patients (cases 10 and 14) in whom the examination also failed, surgical exploration revealed carcinoma of pancreatic head with dilated bile ducts.

Of the 14 patients who underwent laparotomy following PTHC 2 cases showed moderate collection of bile and blood in the peritoneal cavity. This observation justified routine exploration of all patients following successful cannulation. It is desirable to leave the catheter *in situ* following puncture in order to minimise leakage of blood and bile into the peritoneal cavity. Bayinder (1966) and Hanafee and Weiner (1967) reported the use of meglumine iothalamate in percutaneous cholangiography when severe jaundice precluded the use of contrast media by the more usual methods and the visualisation of gastrohepatic bile passages was indicated. Molnar and Stockum (1974) have advocated PTHC as a therapeutic measure to relieve jaundice in critically ill patients where immediate surgical exploration is not possible. Mahajan *et al.* (1974) performed this investigation by using 30 per cent meglumine iodipamide in 33 subjects. Amla *et al.* (1974) used 70 per cent sodium acetrizoate in a series of 10 patients. However, both these contrast media are more toxic than meglumine iothalamate as used in this study and should be avoided. Mukerjee *et al.* (1970) demonstrated obstruction in the common bile duct by transhepatic cholangiogram but the type of contrast medium used was not mentioned.

SUMMARY AND CONCLUSION

Transhepatic cholangiography is a satisfactory procedure in the investigation of jaundice, provided it is undertaken as an immediate pre-operative procedure.

Since only the proximal level of obstruction is shown, the extent of malignant infiltration can not be demonstrated nor can resectibility be predicted.

Failure to cannulate a biliary radicle does not necessarily preclude obstruction. Surgical exploration is justified on clinical grounds alone.

Meglumine iothalamate 60 per cent is the contrast medium of choice, since it is less toxic than other contrast media commonly used.

ACKNOWLEDGMENT

Conray 280 (May & Baker) brand of a sterile 60 per cent aqueous solution of meglumine iothalamate containing equivalent of 280 mg. of iodine per ml. was used in this study.

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PRACTITIONERS' SERIES

The Problem in the Diagnosis of Chronic Synovitis of Knee

M. S. MISGAR*, R. K. CHRUNGOO**
MOHD. ASHRAF***

Synovitis of knee, especially in subacute and chronic stages, is quite often considered and treated as tuberculosis which, however, has not been substantiated by closer clinical and operative findings in quite a few cases. Chronic synovitis is not a diagnosis but a term descriptive of a particular pathological process, i.e., chronic inflammation of the synovial membrane, and this can be caused in several ways. Chronic synovitis of knee has therefore, a profound significance and it is very important to determine the cause of synovitis before deciding on the line of treatment.

CLINICAL ASPECT

One hundred patients with pain, swelling and some with deformity and stiff knee admitted in the Orthopaedic Department, S.M.H.S. Hospital, Srinagar comprised the material for study. Traumatic and acute septic synovitis of knee were not included in this group.

History—History of tuberculosis of chest was present in 8 cases (26.6 per cent) out of 30 diagnosed cases of tuberculous synovitis of knee. History of trauma was obtained in 30 per cent cases of tuberculous synovitis, in 60 per cent cases of undiagnosed synovitis and in 50 per cent cases of osteo-arthritis of knee. History of bleeding tendency was obtained in 3 out of 4 cases of haemophilic arthritis of knee. History of sexual contact was present in all the 4 cases of syphilitic arthritis of knee.

Diagnosis—Thorough interrogation, complete clinical examination. laboratory investigations (including complete haemogram, ESR, routine urine examination, serological test for syphilis, Rose-Waaler test for rheumatoid arthritis and tuberculin test), aspiration of knee joint under all aseptic precautions with smear and culture studies, radiological examination of joint, regional lymph gland biopsy in suitable cases and histopathologic examination of synovial membrance were done in the 100 inpatients during a period of 4 years. The diagnosis of specific type of synovitis of knee was made on the basis of above.

Incidence—In the present series the incidence of chronic synovitis of knee was 5 per cent of all orthopaedic admissions during the period of 4 years. Table 1 shows the incidence of different types of synovitis of knee.

TABLE 1—SHOWING THE INCIDENCE OF DIFFERENT TYPES OF SYNOVITIS

Diagnosis	No. of cases
Tuberculous synovitis	30(30%)
Undiagnosed	22(22%)
Rheumatoid arthritis	16*(16%)
Osteo-arthritis	16(16%)
Septic arthritis	6(6%)
Haemophilic arthritis	4(4%)
Syphilitic arthritis (acquired)	4(4%)
Pigmented villonodular synovitis	2(2%)
Total	100

*Twelve cases had polyarticular involvement

Government Medical College, Srinagar, Kashmir
*M.S., Assistant Professor of Surgery
** M.B.B.S., Postgraduate Student in Surgery
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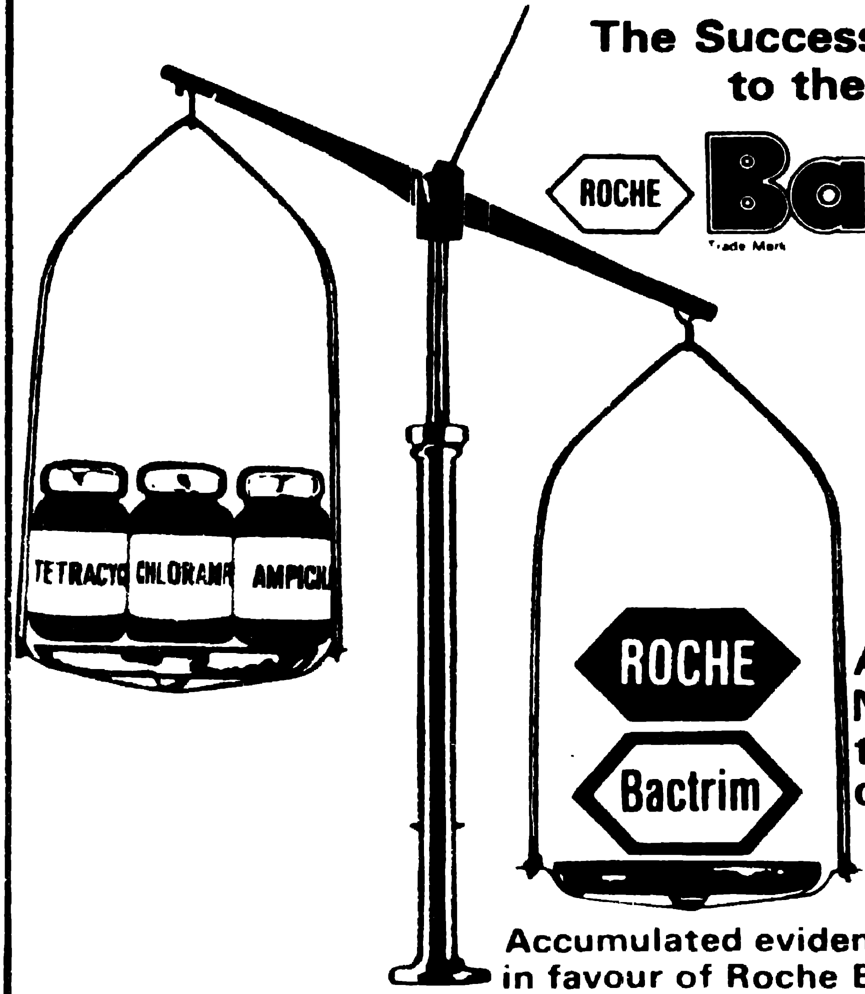

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TABLE 2—SHOWING AGE AND SEX DISTRIBUTION

Diagnosis	Age group in years							Sex	
	0-10	11-20	21-30	31-40	41-50	51-60	61-70	Male	Famale
Tuberculous synovitis	8	18	4	—	—	—	—	18	12
Undiagnosed	—	8	6	6	2	—	—	10	12
Rheumatoid arthritis	—	4	8	2	2	—	—	4	12
Osteo-arthritis	—	—	—	—	12	2	2	12	4
Septic arthritis	2	4	—	—	—	—	—	6	—
Haemophilic arthritis	2	2	—	—	—	—	—	4	
Syphilitic arthritis (acquired)	—	—	—	—	—	2	2	4	
Pigmented villonodular synovitis	—	—	—	—	2	—	—	2	
Total	12	36	18	8	18	4	4	60	40

Age and sex - Table 2 shows age and sex distribution of the patients.

Symptoms and signs—The commonest complaints in this series were swelling, pain, limp, sweating and weakness (Table 3). The clinical findings in various types of synovitis of knee are shown in Table 4.

TABLE 3—SHOWING DISTRIBUTION OF COMPLAINTS

Diagnosis	Swelling	Pain	Limp	Sweating	Weakness
Tuberculous synovitis	30	16	16	16	4
Undiagnosed	16	18	4	—	—
Rheumatoid arthiritis	14	12	4	14	12
Osteo-arthritis	8	16	—	—	2
Septic arthritis	6	6	6	—	—
Haemophilic arthritis	4	4	4	—	2
Syphilitic arthritis (acquired)	4	—	4	—	2
Pigmented villonodular synovitis	2	—	—	—	—
Total	84	72	38	36	22

TABLE 4—SHOWING THE CLINICAL FINDINGS

Diagnosis	Wasting	Deformity	Restriction of movements	Crepitus	Anaemia	Inguinal lymph gland enlargement
Tuberculous synovitis	30	14	12	6	20	18
Undiagnosed	4	6	6	2	6	8
Rheumatoid arthritis	8	6	6	2	10	4
Osteo-arthritis	2	4	10	14	2	—
Septic arthrit is	2	6	6	—	6	2
Haemophilic arthritis	—	2	4	—	2	—
Syphilitic arthritis (acquired)	—	4	—	4	—	—
Pigmented villonodular synovitis	—	—	2	—	—	—
Total	46	42	46	28	46	32

Socio-economic status and occupation—Table 5

TABLE 5—SHOWING SOCIO-ECONOMIC STATUS AND OCCUPATIONAL HISTORY

Diagnosis	Socio-economic status			Occupational history			
	Poor	Middle class	Rich	Farmers	Sedentary workers	Businessmen	Housewives
Tuberculous synovitis	24	6	—	16	—	14	—
Undiagnosed	4	12	6	8	10	4	—
Rheumatoid arthritis	4	4	8	—	4	—	12
Osteo-arthritis	10	6	—	12	4	—	—
Septic arthritis	6	—	—	3	3	—	—
Haemophilic arthritis	4	—	—	4	—	—	—
Syphilitic arthritis (acquired)	2	2	—	2	—	2	—
Pigmented villonodular synovitis	2	—	—	2	—	—	—
Total	56	30	14	47	21	20	12

TABLE 6—SHOWING THE RESULTS OF HAEMATOLOGICAL INVESTIGATIONS

Diagnosis	Total WBC (per c.mm.)		Lymphocytes (%)		ESR (mm. 1st hour)		Haemoglobin (g.%)	
	Mean	Range	Mean	Range	Mean	Range	Mean	Range
Tuberculous synovitis	5000	4000-7000	40	30-60	30	20-70	10	6-12
Undiagnosed	4500	5000-8000	25	20-40	20	10-40	12	10-15
Rheumatoid arthritis	4200	3800-6000	30	25-35	20	10-42	11	5-13
Osteo-arthritis	4500	4500-5000	25	20-40	26	18-42	12	9-14
Septic arthritis	11000	9000-12000	35	30-40	10	5-20	10	7-11
Haemophilic arthritis	7500	5000-10000	27	25-30	24	18-28	9	8-10
Syphilitic arthritis (acquired)	5500	4500-6500	35	30-40	15	12-18	11	10-12
Pigmented villonodular synovitis	5000		30		10		12	

shows the socio-economic status and occupation of the patients.

Investigations– The results of haematological investigations are shown in Table 6.

VDRL test was positive in all the 4 cases of syphilitic arthritis. Bleeding time was normal in all the 4 cases of haemophilic arthritis but clotting time was prolonged in all of them. Culture and smear studies were positive in all the 6 cases of septic arthritis and *Staph. aureus* was the responsible organism. Tubercle bacilli could be cultured only in 2 out of 30 cases of tuberculous synovitis of knee. Rose-Waaler test was positive in 12 out of 16 cases of rheumatoid arthritis (75 per cent). Mantoux reaction was positive in all the cases of tuberculous synovitis.

Radiology—The results of x-ray examination are shown in Table 7.

Operative findings—The gross appearance of synovial membrance at operation is shown in Table 8.

TABLE 7—SHOWING THE RESULTS OF X-RAY EXAMINATION

Diagnosis	Diagnostic	Inconclusive
Tuberculous synovitis	12	8
Undiagnosed	-	22
Rheumatoid arthritis	12	4
Osteo-arthritis	16	—
Septic arthritis	6	—
Haemophilic arthritis	—	4
Syphilitic arthritis (acquired)	4	—
Pigmented villonodular synovitis	—	2
Total	50	50

Histology—Table 9 shows the results of histological examination. Regional lymph node biopsy where inguinal lymph nodes were enlarged, showed its diagnostic value in cases of tuberculous synovitis in 13 out of 18 cases (72.2 per cent).

TABLE 8 SHOWING THE GROSS APPEARANCE OF SYNOVIAL MEMBRANE AT OPERATION

Diagnosis	No. of cases	Thickned membrane	Vascularity		Colour		Pannus	Destruction of cartilages	Caseous material	Villous growth
			Normal	Increased	Grey	Red				
Tuberculous synovitis	30	30	—	30	8	22	12	8	12	—
Undiagnosed	22	18	6	16	2	14	4	2	—	1
Rheumatoid arthritis	16	16	—	16	1	15	16	14	—	—
Osteo-arthritis	16	14	3	13	2	14	8	12	—	2
Septic arthritis	6	6	—	6	—	6	—	4	—	—
Haemophilic arthritis	—	—	—	—	—	—	—	—	—	—
Syphilitic arthritis (acquired)	4	4	—	4	4	—	—	2	—	—
Pigmented villonodular synovitis	2	2	—	2	2	—	—	—	—	2
Total	96	90	9	87	19	71	40	42	12	5

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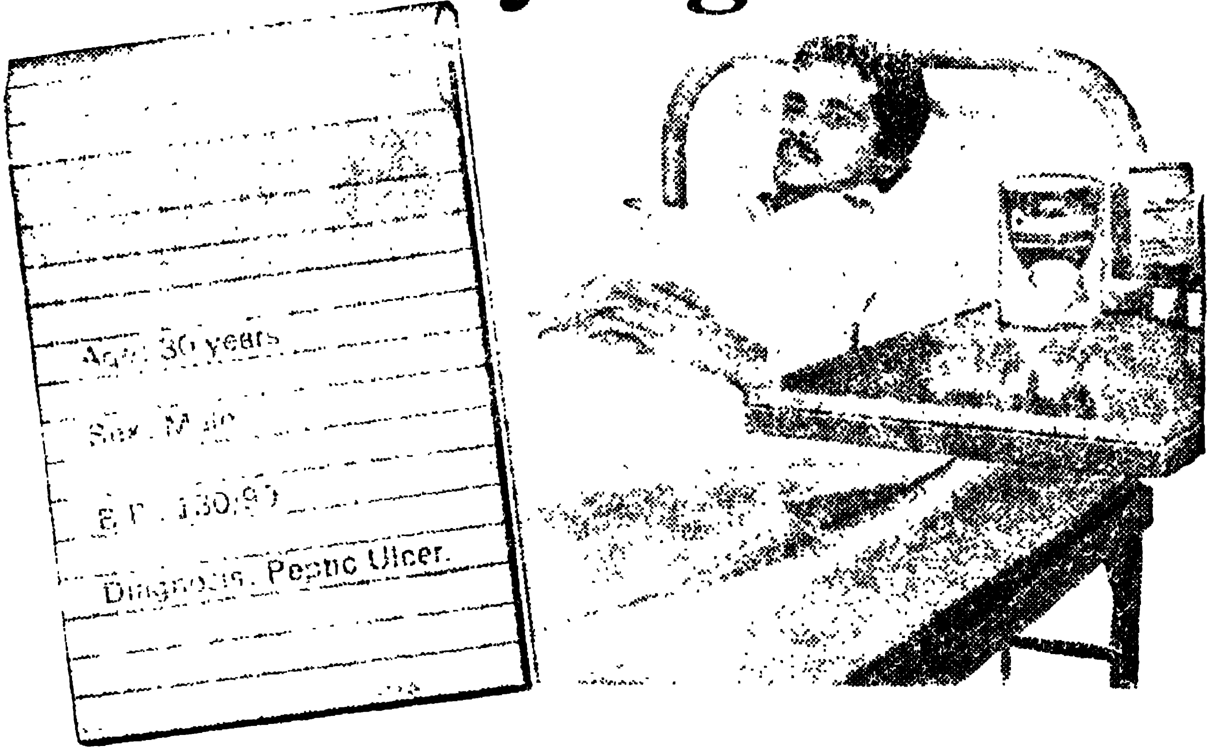

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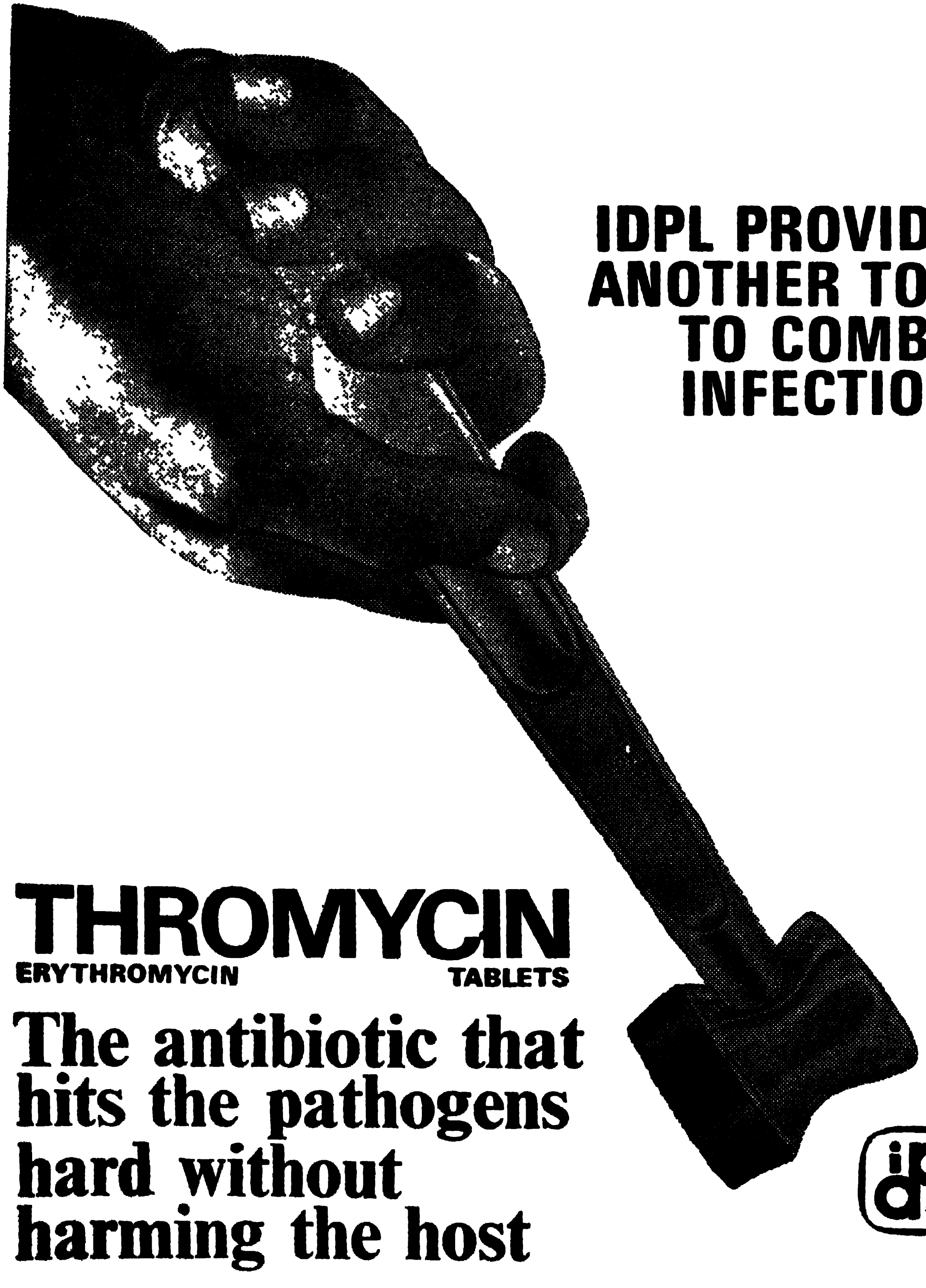

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TABLE 9—SHOWING THE RESULTS OF HISTOLOGICAL EXAMINATION OF SYNOVIAL MEMBRANE

Diagnosis	No. of cases	Fibrosis			Lymphocytes			Giant cells		Endothelial cells		Synovial membrane proliferation		Caseation		Necrosis	
		+	++	+++	+	++	+++	+	−	+	−	+	−	+	−	+	−
Tuberculous synovitis	30	14	12	4	20	10	18	30	0	30	0	2	28	15	15	0	30
Undiagnosed	22	10	8	4	6	14	2	5	17	20	2	2	20	0	22	0	22
Rheumatoid arthritis	16	4	8	4	4	8	4	14	2	15	1	3	13	0	16	0	16
Osteo-arthritis	16	12	4	0	14	1	1	4	12	6	10	1	15	0	16	0	16
Septic arthritis	6	4	2	—	2	1	3	1	5	2	4	1	5	0	6	0	6
Haemophilic arthritis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Syphilitic arthritis (acquired)	4	1	1	2	1	2	1	2	2	2	2	0	4	0	4	3	1
Pigmented villonodular synovitis	2	0	1	1	1	1	0	1	1	1	1	2	0	0	2	0	2
Total	96	45	36	15	30	37	29	57	39	76	20	11	85	15	81	3	93

—, absent; +, Slight; ++, moderate; +++, severe

DISCUSSION

The aetiology of chronic synovitis, as so defined, is usually obscure. Inge (1938) observed that the pathologic changes in the synovium in the usual mono-articular chronic synovitis are not typical of either rheumatoid arthritis or osteo-arthritis. He noted the following in regard to these changes, "whatever the cause of inflammation, whether rheumatoid arthritis, infectious synovitis or chronic trauma and regardless of what the clinical result of operation may be, pathologic changes in the synovial membrane are basically same in all the cases".

Until recently, many joints were treated on the erroneous assumption that they were tuberculous, whereas others, later proved to be tuberculous, were treated for months or years as non-tuberculous. The outcome in both groups has frequently been unfavourably altered by these errors. In peripheral joints the history, physical examination and roentgenographic and laboratory studies often yield inconclusive information (Crenshaw, 1971).

The aetoilogy of 100 cases of chronic synovitis of knee was ascertainable in 78 per cent cases only; in the remaining 22 per cent cases no specific cause could be found and were thus labelled as undiagnosed chronic synovitis of knee. Tuberculous synovitis formed 30 per cent of cases because the incidence of pulmonary tuberculosis in the Kashmir valley is high and incidence of tuberculous arthritis in any given country is roughly proportionate to the amount of pulmonary infection (Wiles, 1959). In the present series rheumatoid and osteo-arthritis each constituted 16 per cent, septic arthritis 6 per cent, haemophilic and syphilitic arthritis 4 per cent each and pigmented villonodular synovitis 2 per cent. In the present series it is impressed that the diagnosis of specific type of synovitis of knee, can only be made on the basis of detailed history, clinical findings, laboratory investigations, radiological features, regional lymph gland biopsy in suitable cases and above all the histopathologic examination of synovial membrane.

SUMMARY

Attempts have been made to form a working model of criteria to solve the problem in the diagnosis of chronic synovitis of knee. One hundred cases of chronic synovitis of knee have been studied and thoroughly investigated according to the scheme outlined above. In spite of the working criteria, in a good percentage of cases (22 per cent) the aetiology remained obscure and, therefore, there is a vast field for research on the aetiology of chronic synovitis of knee, as it is very important to determine the cause of synovitis before any treatment is attempted.

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CASE NOTES

1

Conjunctival Cysticercosis

ISHWAR SINGH*, A. C. PHOGAT**
B. S. CHOHAN***, K. P. S. MALIK****

Human cysticercosis usually manifests itself in a generalised form with widespread involvement of the subcutaneous tissues, muscles and brain. Solitary cyst, a comparatively uncommon mode of manifestation, has been found in all parts of the eye and the lids, the commonest site being the vitreous. Involvement of the conjunctiva is considerably uncommon all the world over compared to the intra-ocular and intracerebral infestations (Duke-Elder, 1965).

In Indian population, this is perhaps the 5th case to be brought on record. The first case of this kind was reported by Chadha (1962), followed by addition of 3 more cases by Reddy *et al.* (1964). The present case merits report because of the clinical curiosity and rarity of such manifestation, particularly in this part of rural India where people are strictly vegetarian.

CASE REPORT

S. K., a 12-year-old Hindu boy from a neighbouring village, was referred from Civil Hospital, Rohtak with a painless swelling of the bulbar conjunctiva of the right eye extending from the middle of the lower fornix to an area 5mm. away from the limbus. It was a localised, hemispherical, whitish cystic swelling, measuring 10 mm. × 9 mm. (Fig. 1). The overlying conjunctiva was free and showed no feature of irritation or inflammation. Pressure over the swelling excited no tenderness. Excision was easy and only thin adhesions with sclera were encountered.

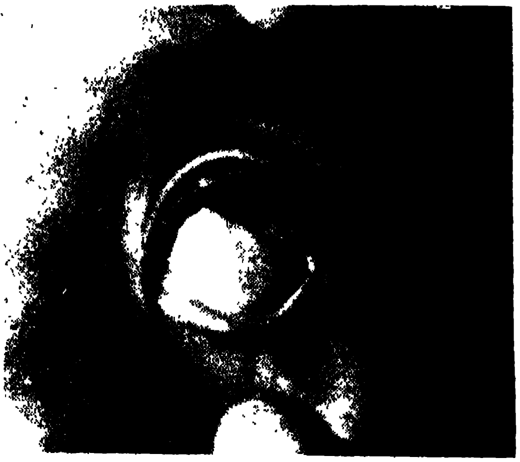

FIG. 1—SHOWING AN OVAL CYSTIC SWELLING OF THE BULBAR CONJUNCTIVA

Microscopic examination confirmed the diagnosis of subconjunctival cysticercus cellulosae (Fig. 2, H. & E., ×40).

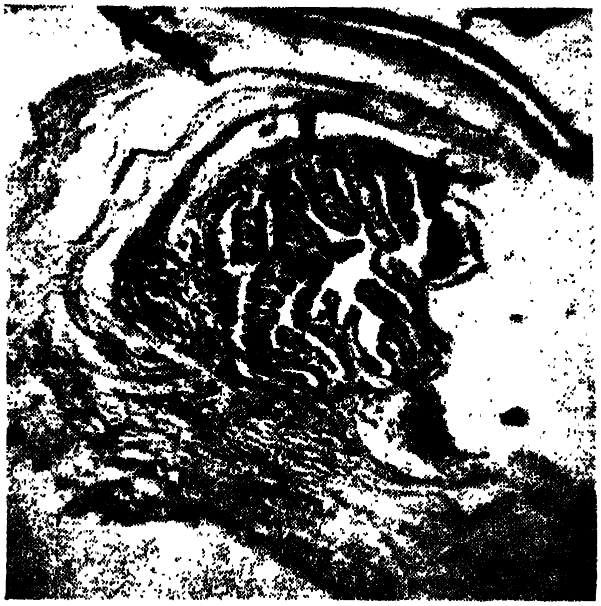

FIG. 2—SHOWING SUBCONJUNCTIVAL CYSTICERCUS CELLULOSAE IN PHOTOMICROGRAPH

The boy was otherwise hale and hearty. History of vomiting, abdominal discomfort, epileptic seizures and passing of worms in the stools was absent. Stool examination after a purgative was positive for *T. solium*.

DISCUSSION

Cysticercosis or the pork tape worm infestation is cosmopolitan in distribution and is most common in countries where pork is eaten raw or insufficiently cooked. Man is the only definitive host and the pig an intermediate host.

The present case represents one of the enigmas of parasitology because of the fact that the sufferer happened to be from an area where people refrain from eating any type of meat. Secondly, the population of hogs there, is practically non-existent. The infection here seems to have been acquired through water or uncooked vegetables contaminated with *T. solium* eggs. The man thus serving as the intermediate host showed features of systemic infection. The lesion here is representative of light and asymptomatic infections conforming to the earlier observations that cysticerci in the musculature and subcutaneous tissues are well tolerated (Beck and Barret-Connor, 1971). Clinical diagnosis is thus difficult but chances of missing such a diagnosis can be minimised if the condition is kept in mind. Excision-biopsy is a radical measure for both diagnosis and treatment.

SUMMARY

A case of conjunctival cysticercosis in a vegetarian Hindu boy representing an uncommon site and unusual mode of pork tape worm infestation, has been presented.

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*M.S., Chief Ophthalmologist, M. N. Eye Hospital, Rohtak
**M.S., Surgeon In-charge, Civil Hospital, Rohtak
***M.D., Reader, Department of Ophthalmology, Medical College, Rohtak
****M.S., Registrar, Department of Ophthalmology, Medical College, Rohtak

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2

Amoeloblastic Fibroma in an Adult

MOHAN SINGH*, S. L. AGARWAL**

The word odontoma was first introduced in 1866 by Broca. The classification, done by Thoma and Goldman (1946), is based according to their embryonal origin. Pindborg and, Clausen (1958) divided odontogenic tumours into two categories, the epithelial and mesodermal. Gorlin *et al.* (1961) reviewed 14 cases from literature and to which they added their own series of 9 cases. Amoeloblastic fibroma belongs to the group of epithelial tumours with presence of induced changes in adjacent connective tissue. Mittal *et al.* (1972) also reported amoeloblastic fibroma in a child aged 6 years.

CASE REPORT

B., a 35-year-old male was brought with gradually increasing swelling of right jaw for preceding 6½ years. Six months before the onset of this swelling, the patient had pain in right lower molars and premolars. A local dentist removed his painful teeth. After 3 months of extraction, the patient noticed a small swelling which was painful in the beginning and became painless after a month. The swelling gradually attained enormous size involving the whole right jaw.

Examination—A huge swelling of right lower jaw extending externally from the ear lobule to the angle of mandible and medially crossing 1 cm. beyond symphisis menti on the opposite side. It was bony hard in consistency but there was no tenderness. The skin was normal and there was no egg-shell crackling present. It was only the outer table of mandible which was expanded by growth. The position of tongue remained normal. Buccogingival sulcus was obliterated by growth. The regional lymph nodes were not enlarged. X-ray picture showed a cystic expansion with bony outgrowth of the mandible. No evidence of any dental element was seen in the cystic area.

Surgery—A successful excision of the tumour along with mandible (Fig. 1) was done. The postoperative period was uneventful and the patient was discharged within a week.

Histopathology—Histopathological report showed amoeloblastic fibroma (Fig. 2, H & E., × 100; Fig. 3, H. & E., ×430).

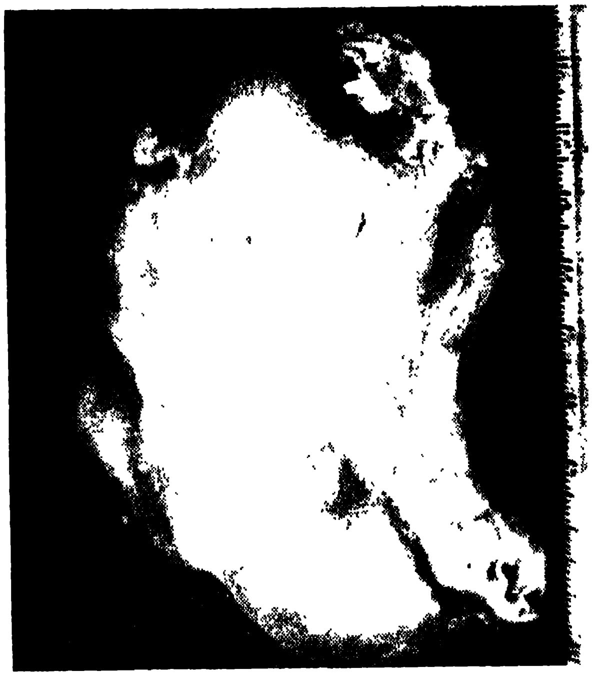

FIG. 1—SHOWING GROSS APPEARANCE OF GROWTH WITH RIGHT MANDIBLE REMOVED

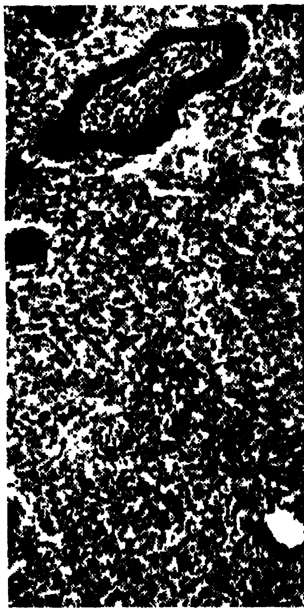

FIG. 2—SHOWING BUDS OF ODONTOGENIC EPITHELIUM IN A CELLULAR STROMA

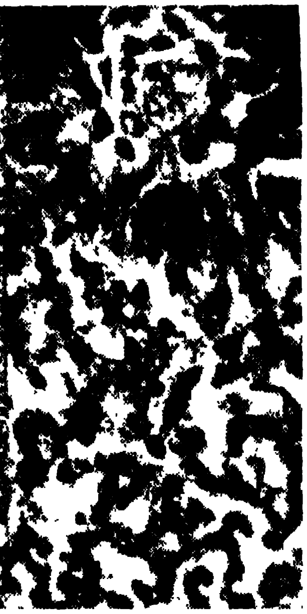

FIG. 3—SHOWING CHARACTERISTIC EMBRYONIC STROMAL CELLS AND ODONTOGENIC EPITHELIUM

DISCUSSION

The amoeloblastic fibroma (soft mixed odontoma) is comparatively uncommon, if it is judged by the number of reported cases.

The tumour is characterised by proliferation of both epithelial and mesenchymal elements in the absence of hard tooth structure i.e., enamel and/or dentine. In contrast to amoeloblastoma, the tumour for which it is commonly mistaken, the amoelo-

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Department of Surgery, M. L. B. Medical College, Jhansi
* M.S., Lecturer
**M.S., F.R.C.S., Reader

blastic fibroma usually occurs in much younger age groups. It is not commonly seen in individuals more than 21 years of age. Shaffer (1955) in his review revealed an average age of 17 years. There appears to be no sex prevalence.

The amoeloblastic fibroma is usually asymptomatic, slowly expanding the cortical plate of the jaw. Sometimes, it is discovered as a smooth outlined, cystic radiolucency on routine roentgenographic examination. Unerupted teeth at times are associated with the tumour. Smith (1968) thinks it to be a coincidence. Spreading of the roots of adjacent teeth may be noted occasionally in the radiographs. Clinical behaviour in all cases surveyed has been almost entirely benign. Most investigators agree that this lesion should be treated by thorough curettage.

Microscopically, this tumour is encapsulated and is composed of strands and buds of epithelial cells in a connective tissue stroma. The epithelial cells rest upon a thin delicate basement membrane. Nuclear orientation is not marked, but when present it tends to be away from the basement membrane. The mesodermal component consists of plump stellate fibroblasts. In some tumours, the fibroblasts are abundant and appear to be more mature.

Cahn and Blum (1952) indicated that if allowed to remain, the odontogenic cells may have gone on to produce dentine, cementum, enamel and perhaps dozens of small malformed and even perfectly formed teeth, the so called compound odontoma. The only difference is one of age and maturation. According to Gorlin *et al.* (*loc. cit.*) the amoeloblastic fibroma would be the first stage of complex or compound odontoma. According to Pindborg and Kramer (1971) the two tumours differ, but lesions, which are primarily complex odontome present features, before calcification, similar to amoeloblastic fibroma.

SUMMARY

A case of amoeloblastic fibroma in an adult has been reported. It is an uncommon benign odontogenic tumour of younger age group.

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3

Haemangio-endothelioma of Upper Tibia

(Angiosarcoma)

NIRMAL JAIN*

Haemangiopericytoma was first described by Stout and Murray (1942). Backwinkel and Diddam (1970) reviewed the world literature and collected 247 cases. Tandon *et al.* (1964) described the histological features in the malignant form of this tumour. Anderson (1971) branded both haemangiopericytoma and haemangio-endothelioma into one category as angiosarcoma as far as their clinical course was concerned. Dube and Fisher (1972) reported a haemangio-endothelioma involving the tibia and the soft tissues of the leg which developed at the site of a metal plate implanted for non-union of a fracture. The plate was retained for 30 years. Dissimilar metals were considered to cause metalic corrosion which triggered the formation of haemangio-endothelioma. Sixty-nine cases of bone tumours of vascular origin were found in a complete review of the surgical files of Mayo Clinic (Unni, 1971). Dutta *et al.* (1976) reported a case of malignant haemagiopericytoma of foot metastasising to scalp, neck and lungs.

CASE REPORT

S. R., a 22-year-old male, was admitted in the P. B. M. Hospital, Bikaner on 6-12-1976, with pain and swelling in the upper part of left leg (Fig. 1). The patient was symptom free 10 months back. To start with he had continuous dull type of pain, more so after working and walking. After about 4 months of the onset of pain, a swelling appeared in the upper part of the left leg, which gradually increased in size. There was no history of trauma, fever, etc. Past history was no contributory.

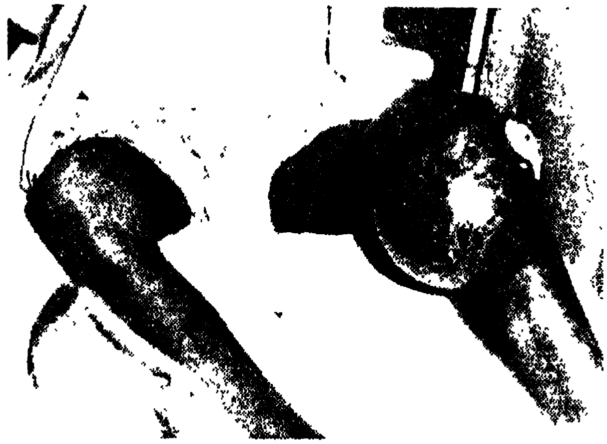

FIG. 1—SHOWING MASSIVE SWELLING ON UPPER LEFT LEG

Examination—Physical examination revealed a swelling (20 cm.×15 cm.×12 cm.) tender, with slightly raised local temperature and of soft to firm consistency. The overlying

S. P. Medical College, Bikaner
* M.S., Z. Orth., D.T.S. (Vienna), Lecturer in Orthopaedics

skin was shining and pigmented. There was no fluctuation, nor any bruit was heard locally. He had no lymphadenopathy. Knee movements were normal. Other systems were normal.

Investigations—Routine laboratory studies of blood and urine were within normal limits. ESR—20 mm. 1st hour, serum calcium -9.6 mg. per cent, inorganic phosphorus—4.4 mg. per cent, serum alkaline phosphatase—8.7 KA units.

Radiological investigations—Skiagram of the chest was normal. AP view of left leg showed lesion of bone on medial aspect of upper 1/3rd of tibia with soft tissue swelling; the lateral view showed erosion of bone at the upper end of tibia anteriorly and periosteal reaction posteriorly with soft tissue swelling anteriorly (Fig. 2). Arteriography (lateral view) showed marked hypervascularity, distorted and abnormal vasculature with pooling of contrast media at places (Fig. 3).

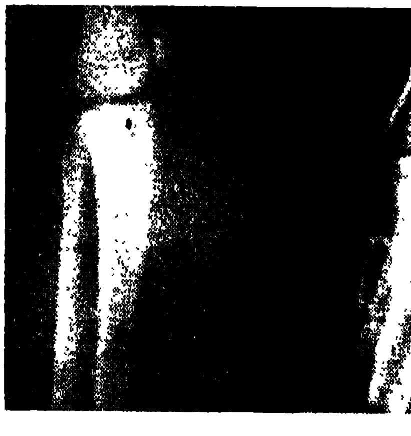

FIG. 2—SHOWING EROSION OF UPPER END OF LEFT TIBIA ANTERIORLY IN X-RAY

FIG. 3—SHOWING ARTERIOGRAPHY WITH MARKED HYPERVASCULARITY

Biopsy—Biopsy of the swelling revealed soft, reddish brown, friable and rubbery tumour. The lesion was interpreted histologically as angiosarcoma.

Surgery—An above-knee amputation was performed. The patient had been provided with an above-knee prosthesis.

Follow-up—Till now there has been no evidence of any pulmonary metastases.

Pathology—Resected specimen showed circumscribed reddish brown, friable, rubbery lesion. The cortex was eroded with the tumour penetrating into surrounding soft tissue.

Histology showed pleomorphic, chromatic cells, enclosing a vascular lumen and also showed vessels lined by the endothelial cells, surrounded by pleomorphic tumour cells with hyperchromatism, mitosis and abortive attempt at formation of vessels (Fig. 4, H & E., ×100).

DISCUSSION

Neoplastic tumours composed of purely vasoformative elements are rare in the skeleton. There was evidence of erosion anteriorly and periosteal reaction posteriorly in the plain x-ray suggestive of malignant tumour. Arteriography confirmed the diagnosis in view of marked hypervascularity and distorted vessels. On biopsy it was found that blood vessels in the bone were involved in the malignant process. The resected specimen showed circumscribed, reddish brown, friable rubbery lesion. The cortex was eroded with the tumour penetrating into the surrounding soft tissues, thereby confirming the diagnosis of angiosarcoma of tibia.

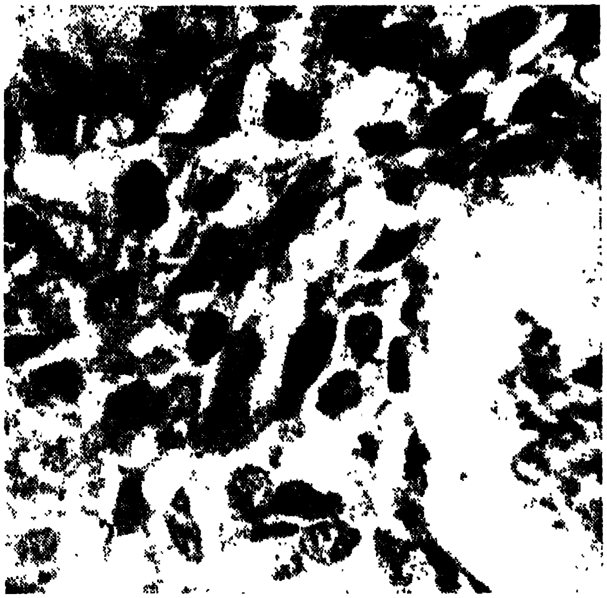

FIG. 4—SHOWING VESSELS LINED BY ENDOTHELIAL CELLS SURROUNDED BY PLEOMORPHIC TUMOUR CELLS WITH HYPERCHROMATISM AND MITOSIS IN PHOTOMICROGRAPH

SUMMARY

A case of malignant haemangio-endothelioma of upper part of left tibia is presented.

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CALCUTTA, MARCH 16, 1978

Arrhythmias and Anti-arrhythmic Drugs

Physiology of the normal sinus rhythm, pathophysiology of the common arrhythmias and the pharmacologic basis for the use of certain antiarrhythmic drugs were discussed in this column earlier[1]. Single premature beats and sustained tachycardias arise from the occasional or repetitive firing of an ectopic focus, or by the occasional or repetitive activity of a re-entrant circuit. Bradyarrhythmias also result essentially from two mechanisms--depressed automaticity or depressed conductivity. Although identification of the electrophysiologic basis of the arrhythmia is basic to successful therapy, unfortunately, it is only rarely possible clinically. Also there is inadequate knowledge on the effects of various anti-arrhythmic drugs. In practice, however, every arrhythmia has to be evaluated comprehensively in the context of the entire clinical problem. Analysis of the events leading to the arrhythmia may disclose which alteration in function is present and thereby indicate optimal therapy. But certain conceptual shortcuts are useful clinically. One of the most important diagnostic task is to distinguish between ventricular and supraventricular arrhythmias because of the differences in the prognosis and management. Ventricular arrhythmias are potentially life threatening while the supraventricular arrhythmias, though occasionally disabling are not usually lethal.

Bradycardia usually results either from slowing of the pacemaker function of the sinus node or from a high-degree A-V block. Sinus bradycardia usually occurs in normal heart--because of increased vagal tone or decreased sympathetic tone. It may however, result from SA node ischaemia, digitalis toxicity or beta-blocking drugs. Advanced A-V blocks is commonly caused by coronary artery disease or by idiopathic fibrosis involving the bundle branch system. Treatment of bradyarrhythmias consists of drugs—like atropine, isoprenaline and the cardiac pacing.

The commonest type of tachycardia is sinus tachycardia due to acceleration of sinus node function which *per se* does not require any treatment other than the treatment of the cause. There are 3 varieties of ectopic supraventricular tachycardias—supraventricular tachycardia, artrial flutter and atrial fibrillation. Supraventricular tachycardia may be paroxysmal or non-paroxysmal. Paroxysmal variety often occurs in healthy heart and is usually terminated by vagal stimulating manoeuvres like carotid sinus massage. Whereas non-paroxysmal variety is usually associated with heart disease, digitalis toxicity or chronic lung disease. Atrial flutter and atrial fibrillation are usually associated with heart disease- like coronary or rheumatic heart disease and those may be the first signs of thyrotoxicosis. Ventricular tachycardia is almost always associated with heart disease- -most frequently coronary artery disease. Digitalis overdosage is a common cause for this arrhythmia. It is a dangerous arrhythmia requiring urgent medical attention. Premature beats both supraventricular and ventricular often occurs in healthy people without any apparent cause. They are, however, sometimes caused by tea, coffee, tobacco or emotional upset. Many types of heart disease, digitalis overdosage, catecholamine excess may also induce premature beats. Multifocal premature beats and the premature beats increasing in frequency with exercise indicate the presence of underlying organic heart disease. Premature beats may aggravate heart failure and angina pectoris. Atrial premature beats may be a fore-runner of atrial fibrillation and ventricular premature beats, ventricular tachycardia or fibrillation.

It is evident even from this very simplified outline of the various arrhythmias that the selection of the anti-arrhythmic agent for an individual patient is difficult and requires thorough diagnostic work-up. However, certain general outline about the indications of their use is in order.

Drugs commonly used in ventricular arrhythmias are quinidine, procainamide, xylocaine and diphenylhydantoin. Quinidine and procainamide depress both automaticity and conduction velocity of the impulses, whereas xylocaine and diphenylhydantoin depress automaticity but do not slow conduction. Ectopic myocardial foci are suppressed more readily than normal pacemaker tissue by these drugs. Since quinidine and procainamide are truly antiarrhythmic drugs they can be used in supraventricular arrhythmias as well. But because of their untoward effects they are usually reserved for more serious ventricular arrhythmias. Even during the administration of small doses of quinidine and procainamide, serious ventricular arrhythmias may occur. In patients with normal renal and hepatic function both quinidine and procainamide are short lived drugs. Quinidine, however, has a relatively longer half-life than procainamide and therefore requires fewer doses. Quinidine and procainamide may cause hypotensive reactions, particularly after parenteral administration. Quinidine may also cause gastro-intestinal side-effects, cinchonism and thrombocytopenic purpura. Immunologic side-effects like lupus-like syndrome, thrombocytopenic and Coomb's positive haemolytic anaemia are occasionally seen with procainamide administration. Xylocaine produces quick anti-arrhythmic effect when given intravenously and its action also disappears quickly. So it is used as an emergency measure for ventricular arrhythmias following myocardial infarction or during cardiac surgery. Diphenylhydantoin was also discussed in this column earlier[2]. It is used primarily in digitalis induced arrhythmias and in arrhythmias not responsive to the more conventional drugs.

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[1] EDITORIAL—*J. Indian M. A.*, 58:15, 1972.

Digitalis (through vagal stimulation), propranolol (through beta blockade) and verapamil (through calcium antagonism) are most frequently used in supraventricular arrhythmias. Digitalis increases automaticity and thus may cause different arrhythmias. Propranolol because of its negative ionotropic effect may precipitate heart failure in patients with compromised myocardial function. It may also cause branchospasm in patients with impaired pulmonary function. Aggravation of cardiac failure and hypotension may occur. It may precipitate asystole, bradycardia and hypotension when used in combination with beta blocking drugs. Elsewhere in this issue an article[3] reports the beneficial effects of oral chloroquine in premature beats. However, further well designed studies are required to evaluate its role as an anti-arrhythmic agent.

J. C. GHOSH

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[2] EDTIORIAL—*J. Indian M. A.*, **64**:342, 1975.

[3] SING, AJIT, SINGH, NARINDER AND SINGH, JASBIR— *Ibid.*, **70**:127, 1978.

CURRENT TOPIC

Paediatric Endocrinology†

M. M. S. AHUJA*

The XV International Congress of Pediatrics was held in New Delhi, October 24-27, 1977 and it is with great satisfaction to record that paediatric endocrinology was given a fair coverage in the plenary sessions on each day.

Endocrinologists of international eminence presented their review on selected topics followed by discussions in which many useful and practical observations were made. It is rather sad to record that one did not find many Indian paediatricians in such a speciality perhaps at this stage it lacks a wider recognition in our settings.

Herewith an attempt is made to bring out a resume of these proceedings for wider dissemination of the new information arising out of these deliberations.

DISORDERS OF THYROID:

Plenary session on disorders of thyroid was held under the chairmanship of P. Malvanx, (Leuven, Belgium). The main papers were on the theme of methods for the screening of hypothyroidism in the newborn.

Hypothyroidism in the newborn—Approximate prevalence of congenital hypothyroidism is around one per 5,000 births and matchs phynylketonuria (PKU) in the western world. So it is becoming mandatory to include this also in biochemical screening programme for the newborn. Parameters being examined included determination of TSH, T_4 and T_3 by the immunoassay methods. Blood drops from heal prick soak disc of filter paper, 40 μl. nominal size and these are luted later for the requisite analysis. Though preliminary screening provides large number of suspects, recall and redeterminations provide more accurate diagnostic precision. Opinion was divided amongst workers as to sensivity of the 3 parameters examined and also as regards cord blood examination *versus* sample examined between 3rd to 5th day. Some workers felt that TSH was more sensitive test (recall rate 0.25 per cent) while others maintained that reliability of T_4 (recall rate 2.5 per cent) was of greater advantage. Such early recognition of hypothyroid state would certainly help in prevention or amelioration of mental retardation by early institution of treatment (H. Fritzsche, Wien, Austria; Illiq, Zurich, Switzerland and D. Gupta, Tubingen, Germany). TSH determinations were more expensive than T_4 (\$ 1.5 *versus* \$ 0.60).

Endemic goitre—F. Delange, (Brussels, Belgium) presented data on endemic goitre in Zaire, Africa, and discussed findings in the endemic cretinism, which affected up to 6 per cent of the population. Myxoedematous cretinism was much more frequent (90 per cent) than those with neurological deficit states (10 per cent). The T_4 values were low and TSH elevated.

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†Review of proceedings of the Plenary Sessions, XV International Congress of Pediatrics, New Delhi, October, 1977

*F.R.C.P., Professor and Head of the Department of Medicine, (In-charge of Endocrinology), All India Institute of Medical Sciences, New Delhi

Hypothyroidism seems to date from the perinatal period and this is substantiated by criteria of (a) existence of biological signs of thyroid insufficiency at birth. TSH is high and 20 per cent show even values higher than 100 μu.per 100 ml., (b) early development of clinical signs of hypothyroidism. X-ray knees by Pyle-Hoerr criteria showed delayed maturation more than 2 months in 50 per cent and (c) prevention of these anomalies by iodine supplementation during gestation—only one case was observed in the group of 44 infants born of mothers injected with iodine compared to 4 cases of myxoedematous cretinism in 45 newborns of untreated mothers.

IQ studies in the follow-up of treatment of congenital hypothyroidism were presented by J. Mohey, (Baltimore, USA).

Treatment—There was a catch up in the mental growth when an individual achieved euthyroid state on thyroid substitution therapy. In approximately 25 per cent, the gain in IQ was greater than 20-40 IQ points. The usefulness of this follow-up was evident from the scholastic and academic achievement and capability of such individuals to become self-supporting.

Behaviour changes as of hyperactivity, irritability and contrariness were seen only transitorily in initiation of substitution therapy in early phase but with time this complication subsided.

DIABETES MELLITUS:

In the symposium on diabetes mellitus in the young, N. Hashem, (Cairo, Egypt) speculated on the various possible metabolic steps where genetic transcription could account for diabetes. She described her observations on the 4 cases of juvenile diabetes in association with optic atrophy, deafness and sclerodermas. Some of these patients had also associated hydronephrosis and hyperalaninuria.

Hyperglycaemia in small-for-date babies—R. S. Pildes, (Illinois, USA) spoke on her experience of syndrome of hyperglycaemia in the small-for-date babies (seen more often than neonatal hypoglycaemia). In certain neonates it is observed as a transitory phenomenon which corrects itself in 3-5 days. The overall mortality in this group was high (19/32), in normoglycaemia infant mortality was 5/43 and this was related to respiratory distress syndrome (RDS) (often due to hyaline membrane). The exact cause of death in such instances was often cerebral haemorrhage. Biochemical studies revealed slightly increased cortisol values, plasma insulin was also high (hyperglycaemia was not due to insulinoprivic cause), and glycerol values were in the normal range. The metabolic cause was not elucidated though its association with RDS seemed significant. Clinical evaluation brought out that hyperglycaemic infants were of significantly lower birth weight and gestational age, had significantly lower mean Apgar scores and higher RDS score.

Control of diabetes in children—J. D. Baum, (Oxford, UK) presented data on control of diabetes in children comparing single dose, monotard and neutral insulin to 2 daily doses of omitard and neutral insulin using frequent blood samples uring the time before and after meals. There was no virtual ifference and morning hyperglycaemia was forthcoming n both groups. Two-injection-regimen tended towards hypolycaemia during night. Twenty-four-hour-urine monitoring n the outpatients' department was very unreliable; 50 per cent f children were having glucose excretion of more than 50g. /24 hours. Other parameters in assessment of diabetic control in children were perspectively discussed.

S. Tandhanand, (Bangkok, Thailand) presented data on low dose insulin in management of ketoacidosis. In his experience, 10 units of plain insulin hourly with total average dose of 60 units insulin was used compared with instances treated conventionally where average dose of 180 units of insulin was needed in a similar situation.

HYPOTHALAMIC PITUITARY GONADAL AXIS:

Ontogeny of hypothalamopituitary gonadal axis in infancy and childhood was presented by M. G. Forest (Lyon, France). A review of findings indicating that at 4-5 months of foetal life, testosterone is increased and this is followed by rise of LH and FSH in circulation. These findings suggest functional capacity of foetal pituitary gland in the 2nd trimester of pregnancy to secrete gonadotrophins and its coincidence with genital differentiation.

Next upsurge is at 1-2 months of life. In males there is increase in testosterone. $\Delta 4$ androstenedione and 17-alpha hydroxyprogesterone and by 6-7 months there is a decrease which continues till pre-pubertal phase. In females, levels of hydroxyprogesterone and 17-beta oestradiol increase by 6-12 months of age along with increase in FSH and then normalise till pre-pubertal phase. The studies indicate that threshold of "gonadostat is very high in foetal life, which later matures but this sensivity returns again during puberty".

Hypothalamic pituitary axis has regulation *via* short loop and long loop feedback and is modulated through dopamine and serotonin from neurones in the hypothalamic region. The temporal relationship of maturation and the exact role in onset of puberty need further elucidation. Minagunchi (Tokyo, Japan) presented perfusion studies in human foetuses, pituitary secretion of FSH, LH and HPRL, and their correlation with histochemical studies. At 16 weeks of gestation, secretion of FSH, LH is forthcoming and is responsive to LH-RH (more in females than in males). HPRL secretion was low but increased with foetal age. TRH response was observed at 22 weeks. Correlative histochemical changes in respective pituitary cells were elucidated.

Treatment of precocious puberty—Treatment of precocious puberty (in 7 girls and 2 boys) with cyproterone acetate (E M. Ritzen, Stockholm, Sweden) was discussed. Cyproterone acetate was administered in dose of 75 mg./sq.m. and in some cases when there was poor or no response for 3 months, this dose was stepped up to 175 mg./sq.m. The clinical signs of puberty were arrested or reduced during treatment. Laboratory evaluation confirmed a decrease in LH in response to LH-RH administration, 3 months following treatment. Peak value of cortisol following ACTH was slightly reduced. Baseline prolactin was raised, testosterone fell in all patients, while oestradiol varied irregularly. This study shows the cyproterone acetate in this high dose acts as negative feedback. Main side-effect was undue gain in weight.

Experimental studies—Studies on pituitary gonadal axis in miniature pigs were presented by Elsaesser-Mariensee, (F.R.G.), highlighting the maturation of gonadal steroid feedback on LH secretion in male and female miniature pigs. In miniature pigs, gonadectomy in either sex did not increase the plasma LH levels significantly and similarly cyclic LH discharge during puberty was not limited by the capability of hypothalamus-pituitary to respond to the stimulatory feedback of oestradiol. This study brings out temporal differences in sensitivity of hypothalamus pituitary (to negative feedback of gonadal hormones) in different species.

CRYPTORCHIDISM:

Pellerin (Paris, France) presented data on anatomical development and histological studies by electron microscopy of cryptorchid testis. A total of 1200 cryptorchid cases had been evaluated in the Children's Hospital, Paris, between 1960-1977. Sixty-seven per cent were unilateral while 33 per cent were bilateral.

Histological features are summarised. Seminiferous tubule diameter is significantly reduced. Number of spermatogenia are reduced. Sertoli cells had remained in Sa stage. Leydig cells show varying grades of degeneration and interstitium is moderately collagenised.

Prof. Job reported studies on endocrinal profile in cryptorchidism in 154 boys aged 1 month to 15 years. Basal LH values were low and this became more significant after LH-RH test. This was so in the very young and pre-pubertal phase and this deficient response was not met with at puberty. Similarly testosterone levels after HCG 3 × 1500 were low but normalised as puberty approahced. FSH levels were in the normal range. Endocrinal evaluation thus indicates that there is retardation of hypophyseal secretion of LH. This is however a heterologous group.

Experimental studies—Hadziselimovic (Basal, Switzerland) outlined experimental studies and the electron microscopic features of cryptorchidism. Pregnant mice on 14th day of pregnancy were given 5 mg. oestrogen and this led to cryptorchidism. Testosterone content of such testes was lower and ultrastructure changes in Leydig cells were showing atrophy. The smooth endoplasmic reticulum was replaced by numerous vacuoles of varying size with increased lipoid content. A prominent nucleolus was seen in the nucleus. Mitochondria were of crystatype. Cell surface was having only rudimentary microvilli.

M. Ritzen (Stockholm, Sweden) reported on morphological and functional alteration of sertoli cells in cryptorchidism. Sertoli cells act as supporting cell and their arrangement is such as to provide internal milieu for the growth of post-mitotic germ cells. In several species, sertoli cells secrete a specific androgen binding protein ABP. This ABP has high binding affinity to testosterone and dihydrotestosterone and gets transported to epididymis *via* the efferent ducts. ABP secretion from sertoli cells is specifically stimulated by FSH and androgens—hormones that modulate spermatogenesis. Sertoli cell dysfunction could be also interpreted by its un-responsiveness to androgens (function of receptors is altered)

Treatment—R. Illiq, (Zurich, Switzerland) reported on the therapeutic results with nasal LH-RS spray given 3 times a day for cryptorchidism in collaborative double blind studies carried at 4 European centres. Of the total of 61 testes treated with LH-RH over a period of 4 weeks, 23 (38 per cent) showed completed descent, in 17 testes (28 per cent) the position was improved and in 12 (19 per cent) unchanged, 9 testes (15 per cent) have not been palpated neither before nor after therapy.

Of a total of 51 testes treated with placebo, one testis showed a complete descent, in 17 testes (33 per cent) the position was improved and in 24 (47 per cent) unchanged, 9 testes (18 per cent) had never been palpated. Results of LH-RH test performed before and 4 weeks after onset of therapy collaborated with the improvement observed.

Consensus in the discussion was that there seemed 2 aspects, endocrinal and structural, in cryptorchidism. Initial therapy with chorionic gonadotrophins or LH-RH should be tried and if no improvement is forthcoming in 6 months, operative intervention may be sought. Age of around 2 years in a child should be suitable for such a procedure.

INTERSEX:

Plenary session on intersex was held under the chairmanship of Prof. A. Prader (Zurich, Switzerland).

Recognition of HY antigen and its implication in determination of embryonic gonad to develop as testis was highlight of the communications of New (New York) and presented by Prof. Prader. HY antigen interaction takes place between plasma membrane of migrant germ cells and somatic elements for testicular organogenesis to proceed. True hermaphrodites xx or ovotestis and males with xx had HY^+ or HY^-HY^+ (mosaic).

Female pseudohermaphroditism—Female pseudohermaphroditism was reviewed by Grant (London, UK). Its prevalence in western countries is 1/5000 and the commonest type is due to 21-hydroxylase deficiency. 17-hydroxy progesterone determinate provides the most reliable diagnostic test and urinary steroids in neonatal period can be misleading. Other rare defects include 11-hydroxylase, 3-beta-dehydrogenase or due to maternal androgen secretin tumour.

Use of progestogens during pregnancy (for test or in instances of threatened abortion) contribute to this malformation and now use of progestogens during pregnancy has been completely given up in Europe.

Treatment—Surgery to correct the appearance of the external genitalia is recommended before the age of one year but further vaginal surgery may be required at adolescence.

Male pseudohermaphroditism—Male pseudohermaphroditism was discussed by Prof. Prader and classified in 3 main categories:

(a) Those with female external genitalia; (b) those wit ambiguous external genitalia; and (c) those with male externa genitalia.

In those with female external genitalia, there were thos with testosterone biosynthesis defects or where there wa endorgan refractoriness to androgens as in testicular feminisation. In those with ambiguous external genitalia, the defec was intermediate. Those with male external genitalia ha persistent Mullerian duct syndrome.

In response to HCG there is no response or subnorma response of testosterone with marked increase in precurosr In 5-alpha-reductase defect urinary etiocholanolone/androsterone and plasma testosterone/dehydrotestosterone ratio increased. In the receptor defects, the nitrogen retention t androgens is decreased. Plasma LH and FSH values are hig in primary testicular deficiency syndrome.

Disorders of testosterone biosynthesis—Zachmann (Zuric Switzerland) gave the present status of the disorders of testosterone biosynthesis.

Five defects of enzymatic deficiency have been identifie so far and they broadly belong to 2 groups:

(a) Cortisol production is impaired simultaneously wit testosterone and clinical signs other than inter-sexuality a present (20-alpha-hydrolase, 3-beta-dehydrogenase and 1 hydroxylase defects).

(b) Cortisol production and aldosterone secretions are normal and intersexuality is the only clinical manifstation (17, 20—desmolase deficiency and 17-ketosteroid reductase deficiency).

After HCG 5000 IU/sq.m. 17-hydroxyprogesterone and its metabolite increase while testosterone does not increase in such instances.

Hypospadias—D. Aarskog, (Bergen, Norway) presented his data on hypospadias. Prevalence varied from 5 to 30 per 10,000 and in some countries, there seemed to be a recent increase. Personal review of 130 cases was presented. Forty-six cases were classified as glandular hypospadias, 42 as penile, 25 as penoscrotal and 17 as scrotal. In 11 cases, use of progestins in early pregnancy was considered pathologically related.

Endocrine evaluation of urinary excretion of LH showed the values to be low, especially in prepubertal cases. Five cases with severe degree of hypospadias had abnormal karyotypes. A normal male karyotype was found in one true hermaphrodite and in 3 patients with remnants of a vagina and Mullerian structures. In only one patient, a normal female karyotype was present who had congenital virilising adrenal hyperplasia.

NOTES AND NEWS

IX Heart Congress of International Society for Heart Research

The IX Heart Congress of the International Society for Heart Research will be held at Vigyan Bhavan, New Delhi, on September 28-October 2, 1978. The main features of the Congress will be the general scientific sessions and symposia. Further information may be had from Dr. M. Tajuddin, President, Indian Section, the International Society for Heart Research, School of Environmental Scientists, Jawharlal Nehru University, New Delhi 110 057 or Prof. P. K. Das, Department of Physiology, Faculty of Medicine, University of Manitoba, Winnipeg, Canada R3E OW3.

Richard Bing Young Investigator Prize

The Richard Bing Young Investigator Prize of the International Society for Heart Research will be awarded at the forthcoming international meeting of the Society to be neld in New Delhi on September 28-October 2, 1978. The prize is for the recognition of outstanding work carried out by young investigators in the field of heart research. Details may be had from and entries may be submitted to the Secretary of the I.S.H.R., Dr. N. S. Dhalla, Department of Physiology, Faculty of Medicine, University of Manitoba, Winnipeg, Canada R3E OW3.

Col. Bose Memorial Guest House at Nagpur

In memory of Col. A. N. Bose, founder-Principal of Government Medical College, Nagpur, the Col. A. N. Bose Guest House, has been opened at Nagpur with facilities for food and accommodation on nominal charges for doctors visiting the city. The guest house, which is located at the IMA House premises on North Ambazari Road, Nagpur, has been built out of the funds collected by the Old Boys' Association of the Government Medical College, Nagpur and the Nagpur Branch of IMA. Dr. V. K. Khare, President of the Nagpur Branch, has requested doctors proposing to visit Nagpur to avail of the facilities available at Col. A. N. Bose Guest House and to contact the IMA Nagpur Branch, IMA House, North Ambazari Road, Nagpur 440 010 (Telephone-22721) for the same.

CORRESPONDENCE

The Editor is not responsible for the views expressed by correspondents

Physical Medicine and Rehabilitation

SIR,—I read with great interest the informative article on the above subject by Dr. A. Chitti Babu (*J. Indian M.A*, 70:11, 1978). The tips given in the article are being practised by many of us and our patients have been much benefited. But a few doctors prescribe medicines only and do not take into account the circumstances and abilities of their patients to do work. This creates frustration and aggravates the disease as well, while the patients become unfit for the society. I suggest, through your esteemed Journal that in public interest every doctor should adhere to the advice given in the article.

I am, etc.,

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OBITUARIES

Dr. T. S. Row

Dr. T. S. Row, a senior member of the Nagpur Branch of IMA, passed away on 1-9-1977. Born on 6-1-1911, Dr. Row graduated in medicine from Grant Medical College, Bombay, in 1936 and joined the health services of the then Central Provinces in 1938. He served in the medical corps of the Indian Army from 1940 to 1946. Later he qualified as an M.R.C.P. and was elected a Fellow of the Royal College of Physicians. After serving as civil surgeon at Buldana, Chandrapur and Nagpur he joined as Principal of Aurangabad Medical College. Upon retirement in 1965 he started private practice at Nagpur.

Dr. Gan Govind Krishna

Dr. Gan Govind Krishna, a past President of the Maharashtra State Branch and the Nagpur Branch of IMA, passed away on 16-2-1977. Born on 20-1-1895, he took his M.B. degree from Calcutta Medical College in 1922 and joined the B. N. Railway as an assistant surgeon. After six years of service he set up private practice in 1929 at Nagpur. He went to the UK in 1935 for higher studies in paediatrics and on his return joined the Mayo Hospital at Nagpur as a children's specialist. He also served as medical officer to the Blind Relief Institute, Nagpur. He was closely associated with the Nagpur University and was a member of its Medical Faculty and the Senate for five years. He was also a founder-member of the Indian Academy of Paediatrics. He leaves behind his wife, six sons—one of them a doctor and only daughter.

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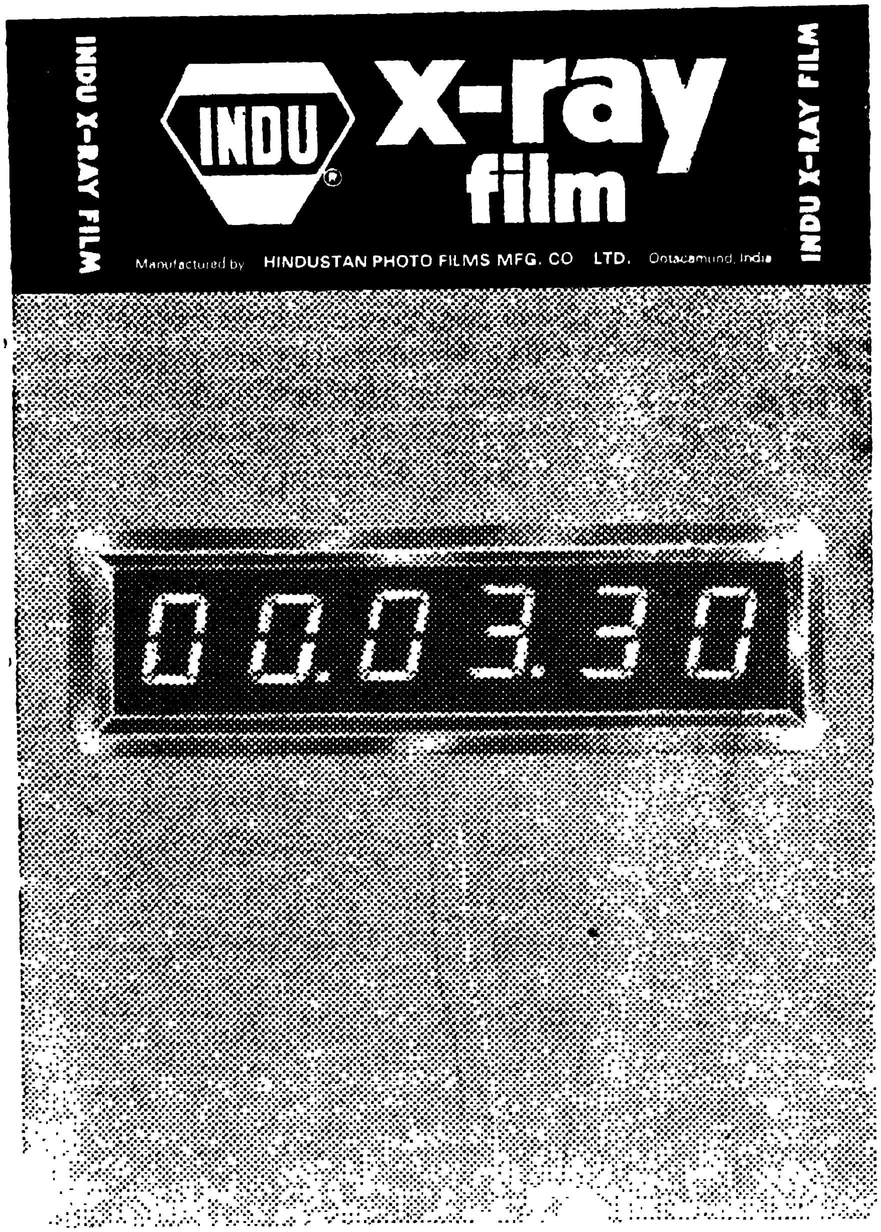
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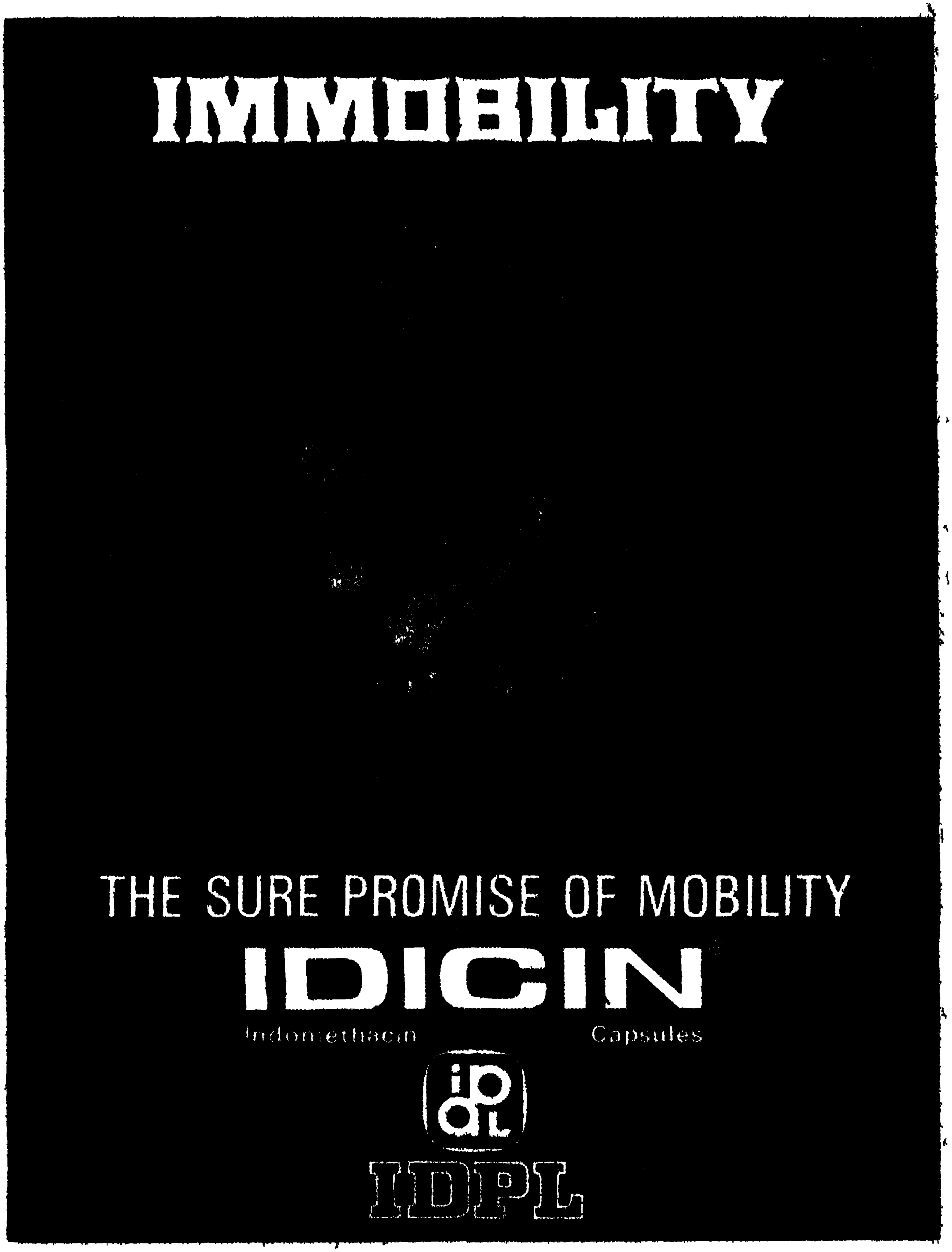
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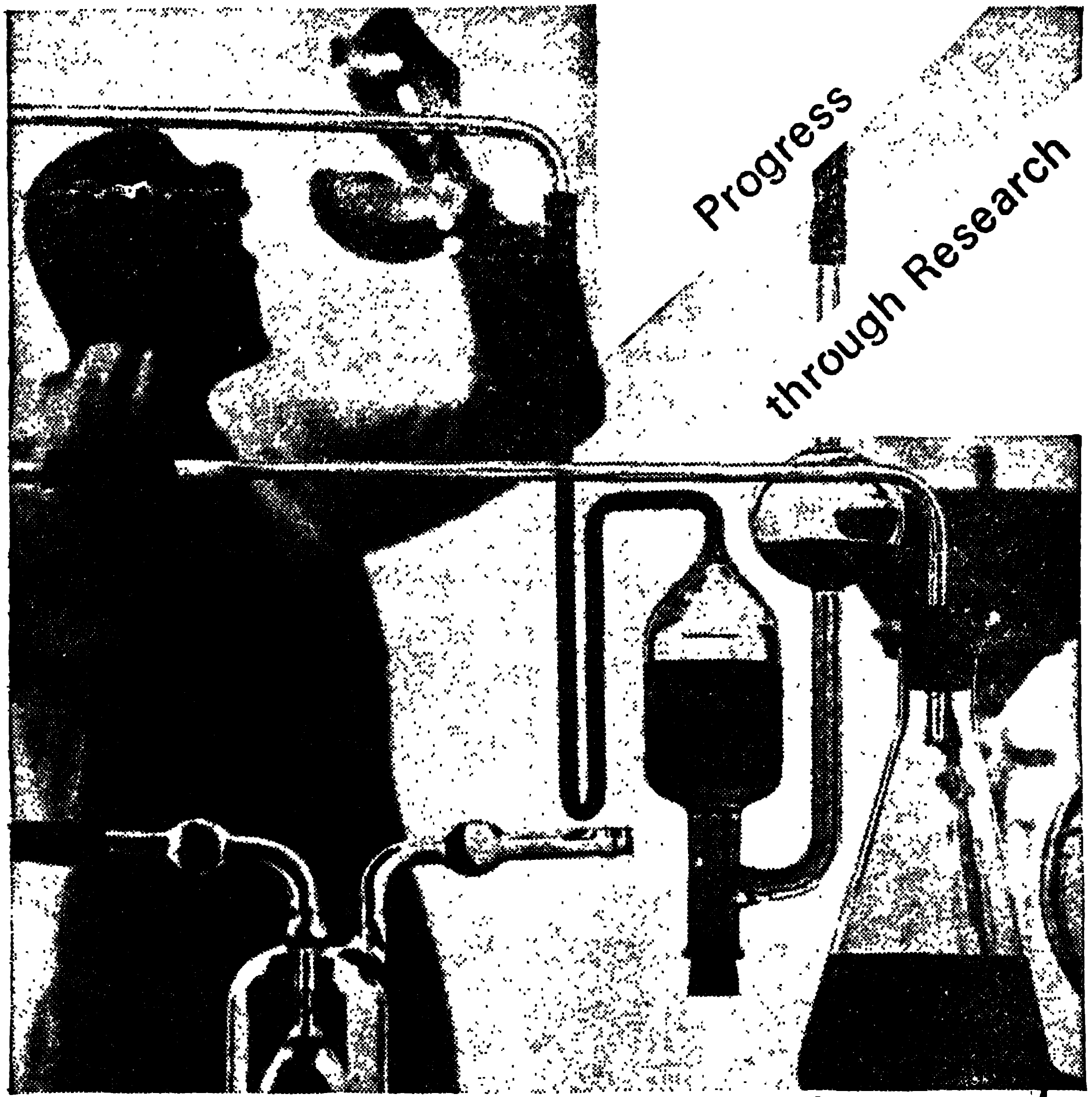

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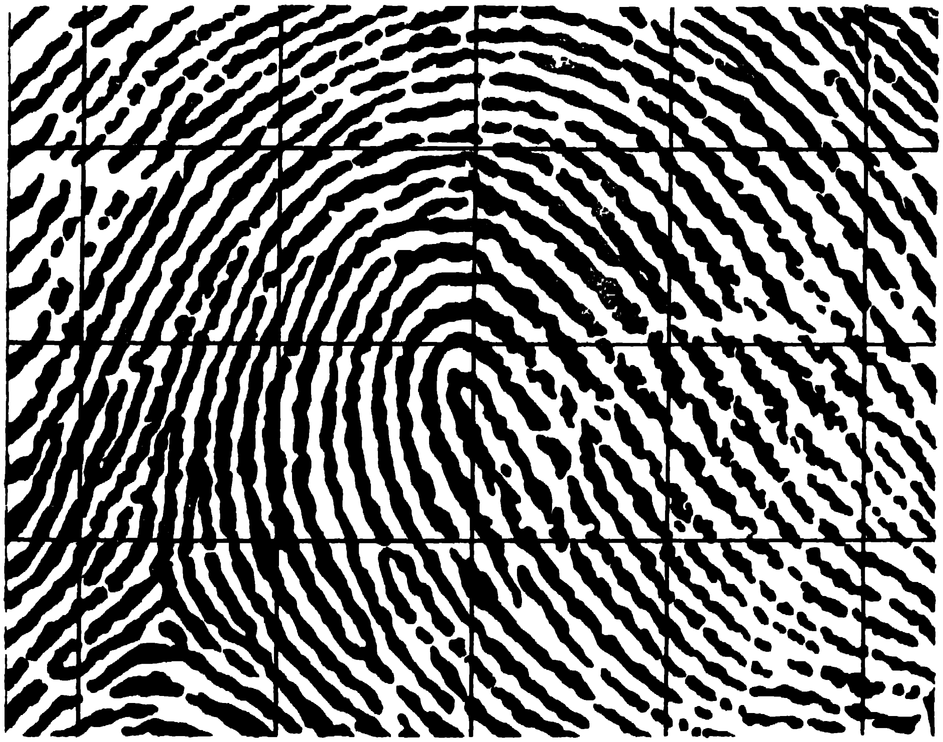

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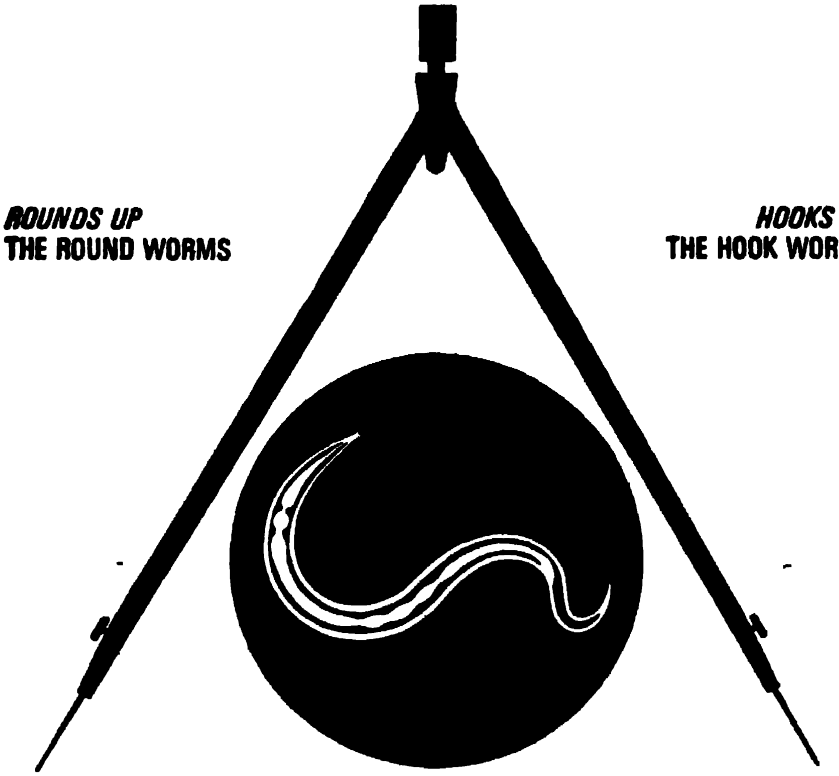

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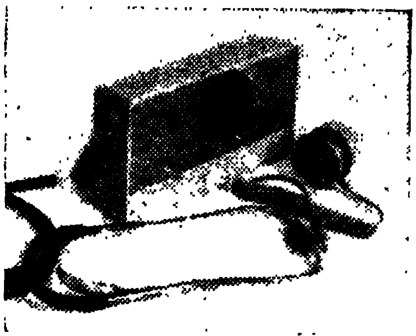

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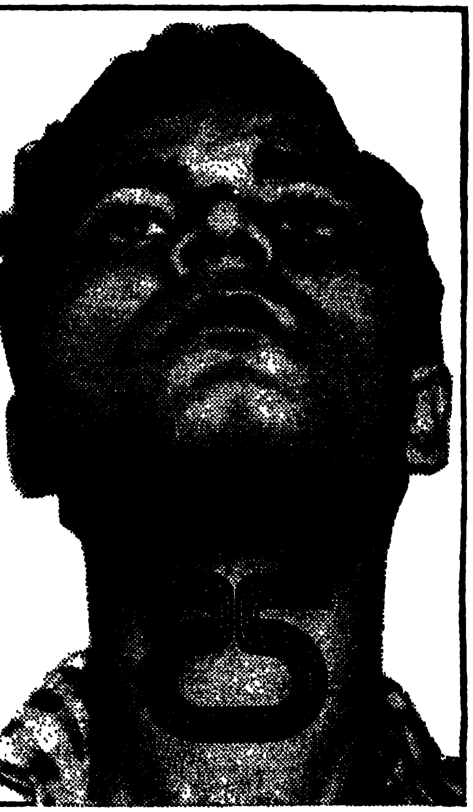

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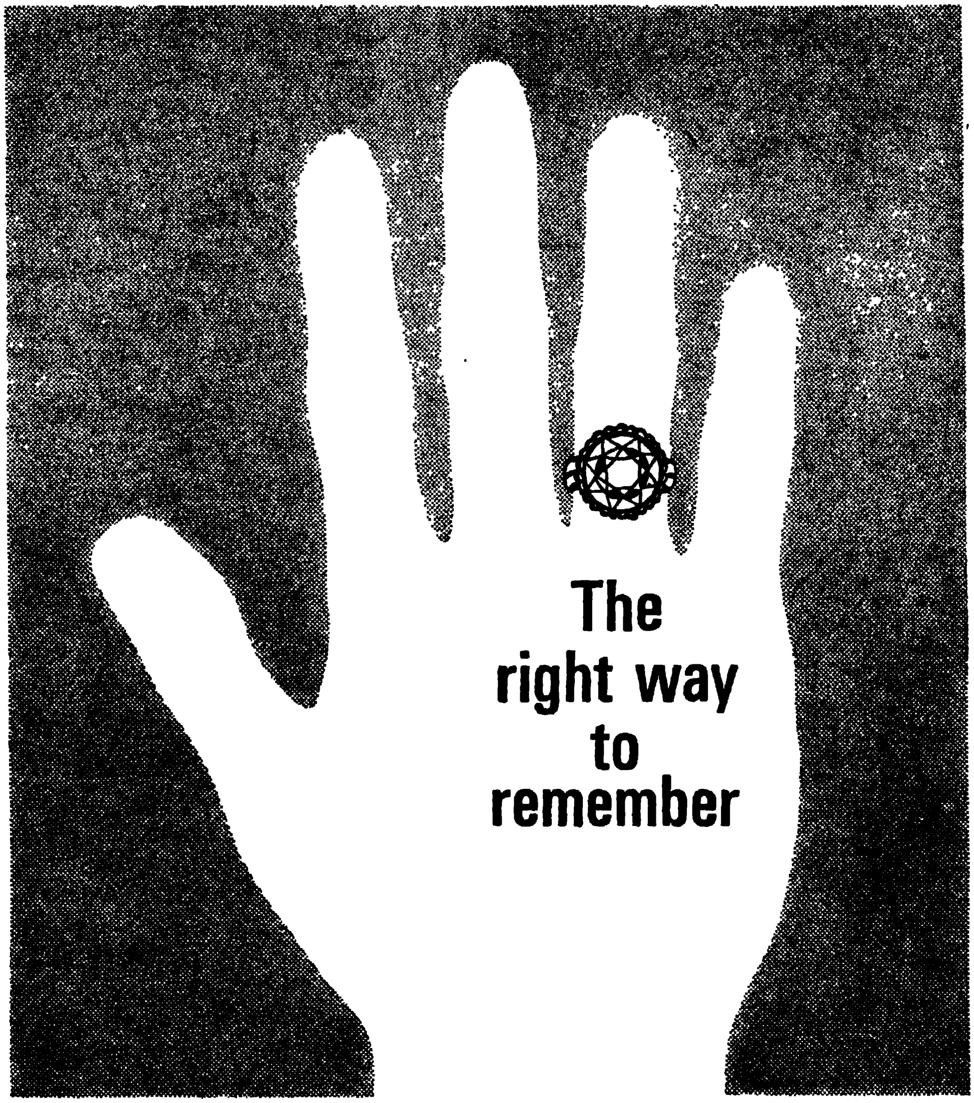

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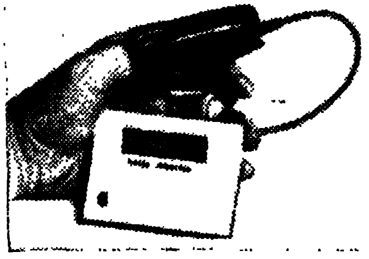

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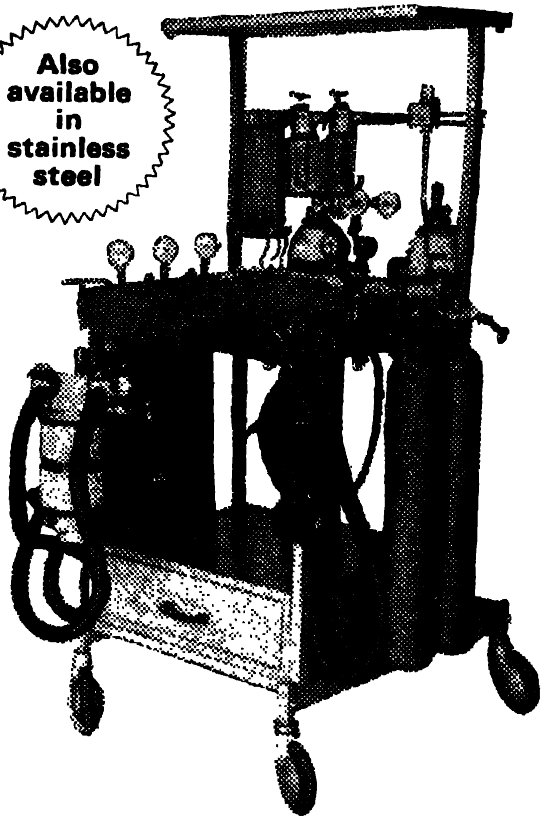

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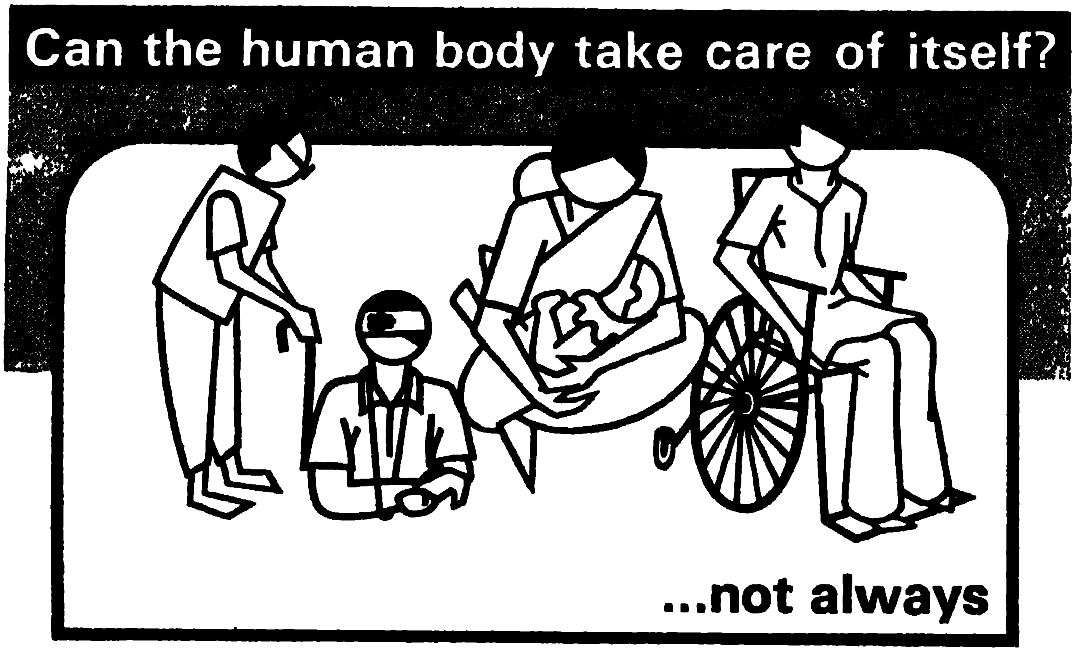
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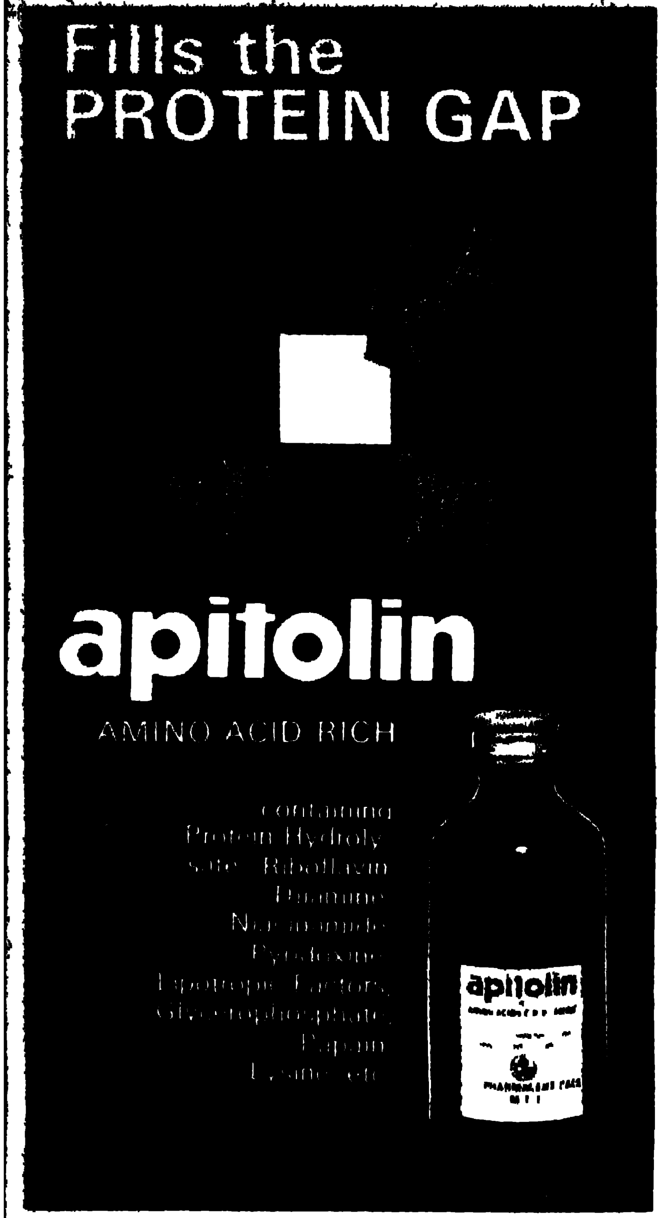

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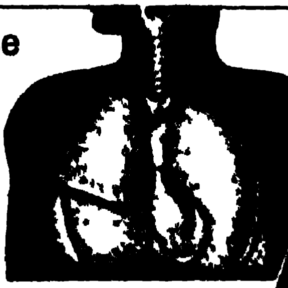

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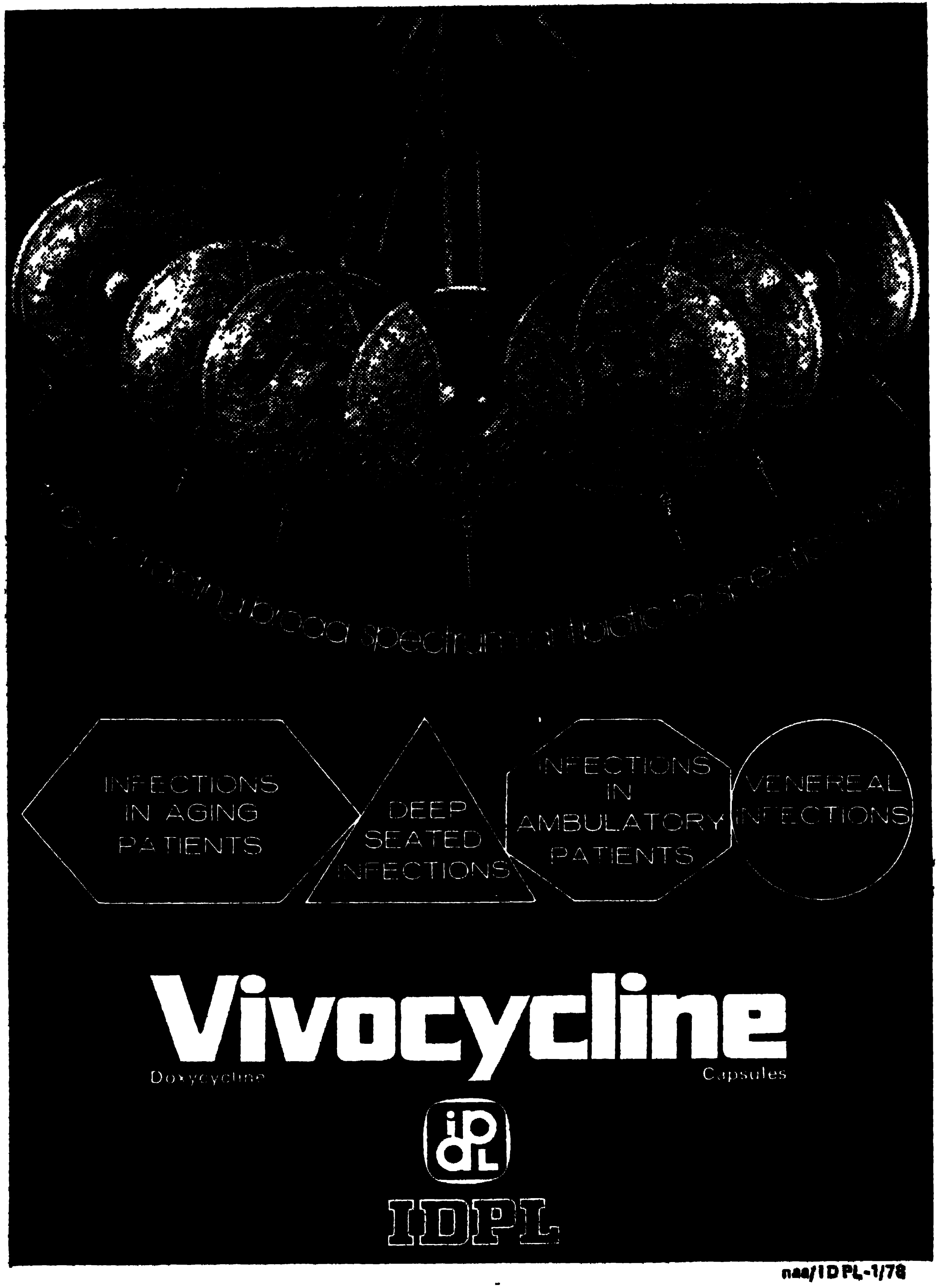

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Journal of the
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CALCUTTA
MAY 16, 1978

ORIGINALS AND PAPERS

1

Breast Feeding by Urban Mothers

M. CHOWDHURY*, N. DUTTA**, A. SARKAR***, B. DEY****

[Received for publication January 9, 1978]

Advantages of breast feeding cannot be overemphasised. A number of studies (Bullen *et. al.*, 1972; Gindrat *et al.*, 1972; Ciba Foundation Symposium, 1976) in recent years establish the biological superiority of human milk over other kinds of mammalian milk to ensure a comprehensive well-being of human babies. In developing countries breast feeding assumes greater importance, as it offers hygienic and low cost ideal food for the babies thus reducing morbidity and mortality of infants.

In India, though breast feeding is still practised widely, if not universally, in rural population, mothers in urban areas tend to favour increasingly replacement of this practice by artificial feeding. It is important that this trend should be discouraged effectively before it reaches the rural population.

Reports are available from other parts of India about the extent of breast feeding practised, though under different sociocultural background and with different objective (Walia *et al.*, 1974; Karkal, 1975; Ghosh *et al.*, 1976), but none is on record from eastern part of the country. This prompted the present authors to undertake the study, which differs from the rest in more than one way.

MATERIAL AND METHOD

The study was conducted on 500 mothers attending the Well-Baby and Immunisation Clinics of the Ramakrishna Mission Seva Pratisthan Hospital, Calcutta. The criteria for selection of mothers for the study were (1) mothers must be Bengali, and (2) the babies must be of 3 months to 1 year of age.

With the help of suitable questionnaire, informations were collected about age, parity, economic status, educational level, duration of breast feeding, complete or otherwise until the baby was 3 months of age, reasons for starting artificial feeding, if started within this period, type of milk and the degree of dilution used for artificial feeding.

OBSERVATIONS

Table 1 shows that of the mothers, 32 per cent practised complete breast feeding at least up to 3 months of baby's age, 1.6 per cent did not offer breast feed at all, 62 per cent of mothers started artificial feeding along with breast feeding before the baby was 3 months old and 4.4 per cent of them completely

TABLE 1—SHOWING FEEDING PATTERN PRACTISED BY MOTHERS

Feeding patterns	No. of mothers
Only breast feeding up to 3 months	160(32%)
Never breast feeding	8(1.6%)
Artificial feeding along with breast feeding up to 3 months	310(62%)
Artificial feeding along with breast feeding for less than 3 months and only on artificial feeding at 3 months	22(4.4%)
Total	500

Department of Paediatrics, Ramakrishna Mission Seva Pratisthan and Vivekananda Institute of Medical Sciences, Calcutta
*M.B.B.S. (Cal.), D.C.H. (Lond.), Associate Professor
**M.D. (Cal.), D.C.H. (Cal.), Resident Physician
***M.B.B.S. (Cal.), D.C.H. (Cal.), Registrar
****M.B.B.S. (Cal.), D.C.H. (Cal.), Senior House Physician

stopped breast feeding by the time the baby was 3 months of age.

Table 2 shows that, of the mothers starting artificial feeding before the baby was 3 months old, in 30.5 per cent it was prompted by insufficient supply of breast milk, while mother's working status was responsible in 6.7 per cent. Despite adequate supply of breast milk, 48.8 per cent started artificial feeding due to misconception and wrong advice. It was necessary in 14 per cent of mothers because of separation from the baby during the first few weeks of life caused by illness of mothers and/or babies. Mother's illness included local cause, viz., retracted nipple, breast abscess, etc.

TABLE 2—SHOWING REASONS FOR CHOICE OF ARTIFICIAL FEEDING

Reasons for artificial feeding		No. of mothers
Insufficiency of breast milk		104(30.5%)
Working status of mothers		23(6.7%)
Illness of mothers and/or babies		47(14%)
Misconception/wrong advice		166(48.8%)
	Total	340

As is shown in Table 3, for the purpose of artificial feeding, dried milk powder of different brands was used by 77 per cent of mothers, while 20 per cent of them used cow's milk or goat's milk, and 3 per cent used a combination of milk powder with cow's or goat's milk. None used buffalo's milk or the supply from Government dairy. Cow's or goat's milk was used in dilutions of 1 : 1 or 1 : 2. Dried milk powder was used as recommended by manufacturers by 38 per cent of mothers and the rest diluted it to half recommended strength.

TABLE 3—SHOWING TYPES OF MILK USED FOR ARTIFICIAL FEEDING AND THEIR DILUTION

Type of milk	No. of cases		Dilution
Milk powder	260(77%)	100(38%)	Full recommended strength
		160(62%)	Half recommended strength
Cow's or goat's milk	68(20%)	30(44%)	1:1
		38(56%)	1:2
Milk powder combined with cow's or goat's milk	12(3%)		
Total	340		

Table 4 shows that the practice of artificial feeding was more common in mothers with higher level of education. Eighty-one per cent of the mothers with higher level of education started artificial feeding before the baby was 3 months of age.

TABLE 4—SHOWING RELATIONSHIP BETWEEN LEVEL OF MOTHERS' EDUCATION AND FEEDING

Level of mother's education	No. of mothers	Breast feeding	Artificial feeding
Graduate	129	27(20.8%)	102(79.2%)
College	63	9(14.2%)	54(85%)
	192	36(18.7%)	156(81%)
School	263	104(39%)	159(61%)
Illiterate	45	20(44%)	25(56%)
	308	124(40.2%)	184(59.7%)

Table 5 shows that of the 3 categories of mothers with total family income of Rs. 1000/- and above, between Rs. 500/- and Rs. 1000/-, and below Rs. 500/- per month, 25.3 per cent, 27 per cent and 38 per cent respectively fed their babies only with breast milk up to 3 months.

TABLE 5—SHOWING RELATIONSHIP BETWEEN ECONOMIC STATUS AND FEEDING

Family income per month	No. of cases	Breast feeding	Artificial feeding
Above Rs. 1000/-	79 (15.8%)	21 (25.3%)	58 (75%)
Between Rs.500-1000/-	182 (36.4%)	49 (27%)	133 (73%)
Below Rs. 500/-	239 (47.8%)	90 (38%)	149 (62%)
Total	500	160	340

Age of mothers varied from 16 to 38 years, majority of them being 20-30 years of age. As indicated in Table 6, age alone did not appreciably influence the choice for artificial feeding. However, insufficiency of breast milk was the main determinant in older mothers, while in younger mothers the predominant cause was misinformation or wrong advice.

Of the mothers included in this study 326 (65.2 per cent), 135 (27 per cent) and 39 (7.8 per cent) were primigravida, 2nd gravida and 3rd gravida or more respectively. Because of the preponderance of primigravida in the composition of study sample no meaningful correlation was possible between parity and the practice of artificial feeding.

TABLE 6—SHOWING RELATIONSHIP BETWEEN MOTHER'S AGE AND ARTIFICIAL FEEDING ALONG WITH OTHER DETERMINANTS

Mother's age	No. of cases	Breast feeding	Artificial feeding	Insufficiency of breast milk	Working mother	Illness of mothers and/ or babies	Misconception or wrong advice
Below 20 years	40(8%)	15(37.5%)	25(62.5%)	4(16%)	—	3(12%)	18(72%)
20-25 years	270(54%)	87(32%)	183(68%)	54(29%)	7(3%)	19(10%)	103(57%)
26-30 years	157(31.4%)	47(30%)	110(70%)	38(34.5%)	13(11.8%)	21(11%)	38(34.5%)
Above 30 years	33(6.6%)	11(33.3%)	22(66.7%)	8(38%)	3(13%)	4(38%)	7(33%)

DISCUSSION

This study differs from other studies in India, as it was hospital-based rather than community-based. Besides, the study sample was drawn from a particular ethnic group belonging mostly to the middle class.

It is important to note that compared to the other studies (Ghosh *et. al., loc. cit.*; Karkal, *loc. cit.*; Walia *et. al., loc. cit.*), a higher proportion (66.4 per cent) of mothers started artificial feeding along with breast feeding before the baby was 3 months old, while much less, only 4.4 per cent made a complete switch-over to artificial feeding at 3 months. Unlike the observations in Delhi (Ghosh *et. al., loc. cit.*) and Chandigarh (Walia *et al., loc. cit.*), 1.6 per cent of mothers in this study did not breast feed their babies at all, the proportion being less than that in Bombay (Karkal, *loc. cit.*). A larger number (77 per cent) of mothers practising artificial feeding used dried milk powder, and a smaller number (20 per cent) used cow's or goat's milk compared with what has been noted in other studies mentioned above, while none used buffalo's milk. It is surprising that no mother used milk from Government dairy, though cheaper than what they used from other sources.

The most common reason for starting artificial feeding was misconception or wrong advice by family members or sometimes by physicians. It was particularly evident in young mothers mostly from lower economic status and with lower educational level, who despite sufficient supply of breast milk started top feeding due to mistaken impression about superiority of artificial milk over breast milk. Ignorance about total requirement of a growing baby was also responsible in some cases. In mothers of higher age groups and with higher level of education, however, it was either due to insufficient supply of breast milk, presumably due to psychological block or due to working status, and in some it was necessary due to early separation from the babies caused by instrumental labour.

Illiterate mothers were only 45 in number. It is, indeed. alarming that 56 per cent of them started artificial feeding before the baby was 3 months of age, though they came from the lower socio-economic status.

Observations recorded here would seem to call for immediate and organised measures to discourage the increasing trend for artificial feeding, an obvious hazard to the child health.

SUMMARY

Five hundred Bengali mothers mostly from middle class attending the Well-Baby Clinic of a Calcutta hospital were studied to determine the extent of breast feeding practised and the factors influencing the choice for artificial feeding. Of the mothers taking recourse to artificial feeding, 66.4 per cent combined it with breast feeding before the child was 3 months old, while 4.4 per cent made a complete switch-over to artificial feeding at 3 months. Only 1.6 per cent of mothers did not breast feed their babies at all. Dried milk powder was used for artificial feeding by 77 per cent of mothers. The commonest factor prompting a choice for artificial feeding particularly in young mothers of lower socio-economic status and with sufficient supply of breast milk, was wrong idea or advice. However, with the mothers of older age-group and with higher level of education, insufficient supply of breast milk, probably due to psychological block or in consequence to wroking status and in some induced by early separation of babies, were responsible for artificial feeding.

ACKNOWLEDGMENT

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2

Factors Influencing Hospitalisation in Pregnancy

(A Statistical Evaluation)

P. RASHID*, A. KHAN**, M. ZAHEER***

[Received for publication May 2, 1977]

It is customary in India that mothers least avail themselves of the services of a hospital during delivery, even though the facilities may be available to them within easy reach. In the developed countries, however, the situation is quite different, that is, more mothers are in favour of institutional rather than domiciliary confinements. It has been reported that in United States of America, 97 per cent babies are born in a hospital with a physician in attendance (Mumford and Skipper, 1966), whereas in India, only 14 per cent deliveries are institutional and about 80 per cent of confinements are attended by untrained personnel at home (Mukerjee, cited by Ghosh, 1970). Such conditions exist due to meagre medical facilities available in this country, specially so in rural areas; even in areas where maternity services are provided, they are not utilised to their maximum advantage. There is greater patronage of the *dai* who by tradition enjoys the prestige of the community and confidence of the mothers, performing her task at home with great satisfaction and convenience to the pregnant mother. This feature is particularly prominent in rural areas, and has contributed to a high maternal morbidity and mortality as well as high perinatal and neonatal mortality.

In urban areas too, a complex of social and cultural influences operate against acceptance of the institutionalised maternity services. A study of these factors would help in the proper planning of the maternal welfare scheme, so that appropriate facilities may be provided according to the needs of the community. Keeping this objective in view, the present study was conducted to highlight the importance of relevant sociomedical factors that influence the pattern of hospitalisation in pregnancy.

MATERIAL AND METHOD

The study sample was drawn after interviewing nearly all the mothers attending the Ante-natal Clinic, Jawaharlal Nehru Medical College Hospital, Aligarh, during the period from August, 1972 to July, 1973. Out of a total annual attendance of 500 mothers at the clinic, 430 mothers were interviewed by the schedule method. This study formed a part of the survey to find out the health status of expectant mothers visiting the clinic. Besides collecting data regarding health and morbidity pattern amongst the mothers, a detailed record of all their past pregnancy terminations and their respective places of confinements was also obtained. For the present study, mothers with 3 or more deliveries were considered in the analysis since observations over a reasonable number of parities only can enable us to form an idea regarding the pattern of institutional and domiciliary confinements. The sample size thus consisted of 141 mothers who had a history of at least 3 confinements in the past pregnancies. These mothers were divided into 3 groups depending upon the place of confinement during all their past pregnancies (present pregnancy excluded). Group G_1 consisted of mothers who gave history of all pregnancy terminations in a hospital whereas group G_3 comprised mothers with only home deliveries. Those mothers who underwent hospital as well as home deliveries were placed under group G_2. Hospitalisation in the last group might have been due to some short term factors like a medical complication during pregnancy/delivery or certain temporary social problems operating at that time.

Realising the fact that certain motives operate in choosing institutional confinements, a multivariate analysis was done to find out the significance of some relevant sociomedical factors influencing hospitalisation. The factors considered in the present study were (1) housing condition (or space available in the house), (2) number of helping hands in the family, (3) social class, (4) complications during pregnancies, (5) literacy status of the mother and (6) accessibility to a hospital. The last factor was excluded from the analysis, as all the mothers included in the study resided in areas where free hospital facilities were available in reasonably close proxmimity (i.e., a distance of not more than 5 km.).

Department of Preventive and Social Medicine, Jawaharlal Nehru Medical College, Aligarh Muslim University, Aligarh
*M B B.S., M D. (Preventive and Social Medicine), Lecturer
** M Sc. (Statistics), Lecturer
***M B B.S., M.D. (Preventive and Social Medicine), Professor

It is generally observed that more mothers resort o a hospital for delivery in the absence of helping ands in the family. For the present analysis, all amily members over 10 years of age were regarded s helping hands. Shortage of space in the house as also been described as an important factor ompelling a mother to undergo hospital delivery Biswas, 1965). Living accommodation available vas estimated in terms of the number of rooms vailable per individual (the exact measurements of he rooms were not available).

Literacy and socio-economic status have a signi-cant bearing on the utilisation of obstetric services. The social classification was done according to rosad (1970) and a system of scoring was adopted or analysis. Social classes I, II, III, IV and V were iven the scores 5, 4, 3, 2 and 1 respectively. Simi-arly, literacy status of the mothers was graded into lliterate, just literate and primary, middle and igh school, intermediate and finally degree holders, nd these were given the scores 1, 2, 3, 4 and 5, espectively.

Complications during pregnancy generally compel nothers to seek hospital aid, hence a history of ossible complication during the previous preg-ancy or delivery was enquired into. This was ssessed according to the International Classifica-ion of Diseases (WHO, 1967). A score of 3 was iven to mothers where all or a majority of preg-ncies and deliveries were complicated. A score f 2 was given to mothers with a history of at least ne serious malady and a score of 1 was attributed o the normal cases.

For the purpose of analysis, a statistical test was pplied to see whether the 5 multiple factors, i.e., ousing condition (X_1), number of helping hands n the family (X_2), social class (X_3), degree of omplications (X_4) and literacy status of mothers X_5) influenced the various categories of hospitaliation (G_1, G_2 and G_3).

Statistical methodology—$\underline{X}$ *denotes* the column vector of 5 variables, $X_1, \ldots, X_5$ under consideraion. Each of the variables has been measured for ndependent random samples of sizes n_i (i=1, 2, 3) or the 3 groups. $\underline{X}_{ij}$ denotes the jth vector observaion from the group G_i (i=1, 2, 3). In the present tudy $n_1=12$, $n_2=59$, $n_3=70$. These 3 groups have een compared simultaneously with respect to the neans of all the 5 variables under consideration y the use of standard technique called multivariate nalysis of dispersion (Rao, 1952). The sample nean vector for each group was calculated as $x_i = 1/n_i \sum_{j=1}^{n_i} \underline{X}_{ij}$, i=1, 2, 3. The sample means of ll the groups were then pooled. This pooled sample mean vector is represented by $\underline{x} = 1/N \sum_{i=1}^{3} n_i \bar{\underline{x}}_i$ when $N = \sum_{i=1}^{3} n_i$.

The sum and product matrix due to *within population* and *between population* has been analysed and denoted by W and Q respectively. The statistic applied for testing the difference in mean value is

$$V = -m \log_e \Lambda \qquad m = (N-1) - \frac{p+q+1}{2}$$

$$\text{When } \Lambda = \frac{|W|}{|W+Q|}, \qquad \begin{aligned} p &= \text{No. of variables} = 5 \\ q &= \text{No. of groups} - 1 = 2 \end{aligned}$$

Under the null hypothesis of difference V has an approximately X^2 distribution with pq degree of freedom.

Limitations of the study—In the present study, out of 644 deliveries, 22.8 per cent were terminated in a hospital, a rate which is higher than that of 14 per cent for India (Mukerjee, cited by Ghosh, *loc. cit.*). The sample studied cannot be considered truly representative of the Indian population, being a hospital based study, showing greater tendency among mothers to avail themselves of hospital amenities. Such a study if carried out by random selection of mothers from the community would depict a better relationship of sociomedical factors with hospitalisation.

Motivation in the selection of home delivery might not have been due to choice. A hospital-minded woman may have had to satisfy herself at home due to inability to procure a bed in time. An enquiry of the factors operating at each event of delivery was not obtained in the present study.

The average per capita living accommodation in the house was calculated as the number of rooms per person, for the exact measurements of each room were not available. Hence allowance may be given to the margin of accuracy in this factor.

It should be noted that even though variables $X_1, \ldots, X_5$ are discrete random variables, the above statistical technique called multivariate analysis of dispersion has been employed as an approximation to provide an idea about the influence on hospitalisation of the 5 factors being studied.

OBSERVATIONS AND DISCUSSION

Table 1 shows the average scores x_{ik} (i=1, 2, 3; k=1, 2, 3, 4, 5) of the various factors distributed according to the different groups G_i (i=1, 2, 3) of hospitalisation.

TABLE 1—SHOWING AVERAGE SCORES OF SOCIOMEDICAL FACTORS DISTRIBUTED ACCORDING TO PATTERN OF HOSPITALISATION

Variable Group	Sample size	Average space in the house X_1	Average No. of helping hands in the family X_2	Social class X_3	Average complications during pregnancies X_4	Educationnal status of mothers X_5
G_1	12	0.6021	2.0000	2.6666	1.6666	2.5000
G_2	59	0.5623	2.2372	2.1186	1.5762	2.1186
G_3	70	0.4201	2.9714	2.0162	1.2857	1.7857

The central X^2 value was found to be large ($V=30.5$ with $pq=10$ degree of freedom) showing that the mean vectors of the 3 groups (μ_1, μ_2, μ_3) are significantly different. The technique of analysis of variance was applied to investigate which of the variables $X_1, \ldots\ldots, X_5$ causes this significant difference. The calculated value of the F statistic was also observed to be significant at the 5 per cent level ($P<.05$) with respect to each variable. This highlights the fact that certain factors, like (1) good social class, (2) literacy status (3) dearth of helping hands in the family and (4) complications during pregnancies and deliveries, have a significant role in the selection of institutional confinement. These findings are in conformity with the observations made by Biswas (*loc. cit.*) in Calcutta. In the present study mothers who resorted to the hospital for delivery had, on the average, more space in the house. This may be attributed to the fact that mothers of a better socio-economic status have better housing conditions and belong to a group of population that avails itself of hospital facilities during pregnancy. However, Biswas (*loc. cit.*) reported that mothers who underwent institutional delivery had generally poor housing conditions. This difference is probably due to a difference in the samples of population studied. In the latter study all mothers, rich and poor, resided within a small belt surrounding the R. G. Kar Medical College, Calcutta, and were thus fully exposed to the benefit of a next-door hospital.

The authors then carried out grading of group means of each variable $X_1, \ldots\ldots, X_5$ by grouping together means which are not significant, separating out others. This analysis revealed that G_1 and G_2 constitute a group of mothers significantly different from G_3 as far as all the variables $X_1, \ldots\ldots, X_5$ are concerned by calculating the standard normal variate Z (Rao, *loc. cit.*). The values of Z and the corresponding P values are shown in Table 2.

TABLE 2—SHOWING THE VALUES OF Z AND THE CORRESPONDING P VALUES

Variables	X_1	X_2	X_3	X_4	X_5
Z	2.9	1.97	1.97	3.15	2.6
P values	<.01	<.05	<.05	<.01	<.01

Table 1 shows that the group G_1 and G_2 of mothers represent sections of population who have a better socio-economic and literacy status, good housing conditions, smaller number of helping hands (probably due to smaller families) and who seek hospital confinements for all their pregnancies or when the occasion demands. It is also obvious that complications during pregnancy or delivery (X_4) tend to compel mothers to seek hospital aid.

Mothers of the group G_3 are economically at a disadvantage, have less space in their house but more helping hands (due to large size of the families) and choose to stay at home for their deliveries. These women are also of poor educational status and have not understood the value of hospital care during confinement.

SUMMARY AND CONCLUSION

The preceding statistical analysis has revealed the significant role of sociomedical factors in the selection of institutional delivery. It is evident from the study that mothers of good socio-economic and high literacy status seek hospital aid with greater frequency than their poor, uneducated sisters. It is also observed that a smaller number of helping hands in the family and complications during pregnancies and deliveries are important motivating factors for availing oneself of hospital amenities.

Though in the past few years there has been a considerable improvement in the provision of hospital facilities, specially in the urban areas, it has not been able to meet the needs of the mothers adequately. Moreover, as pointed out earlier, social and cultural factors also, have prevented mothers from utilising hospital services in India. An awareness of these varied problems will help us to decide what type of service is best suited to fulfil the health needs in our country and at the same time be acceptable to the people as well as be financially feasible. Experience has shown that health services for mothers are more likely to be accepted and used when they are attuned to the cultural heritage, beliefs and customs of the people. Since a majority of the deliveries in India are conducted at home and hospital facilities cannot cater to the needs of all the mothers, there should be efficient utilisation of midwives in a domiciliary situation for normal deliveries, that constitute about 95 per cent of total deliveries. At the same time, screening should be done by the auxiliaries to detect 'at risk' cases, so that these may be rightly directed to avail themselves of the institutional services. Such a comprehensive planning of the maternal welfare scheme would go a long way to reduce the financial burden of the organisation and at the same time would satisfy the uneducated, tradition-bound mothers who constitute the majority of women of this country.

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CASE NOTES

1

Dermoid Cyst of the Mesentery

P. K. CHATTOPADHYAYA*
GEETA CHATTOPADHYAYA**

Walker and Putnam (1975) state that the cystic lesions of the omentum, mesentery and retroperitoneum are uncommon lesions which are seldom diagnosed prior to operation. The first report of mesenteric cyst is commonly ascribed to a Florentine anatomist Beneviene who related the finding of a cyst of the small bowel mesentery during an autopsy in 1507. Rokintancy in 1842 (cited by Hardin and Hardy, 1970) gave a more detailed description when he found a chylous cyst of the mesentery. The first surgical excision was reported in 1880 by Tillaux (cited by Walker and Putnam, *loc. cit.*)

CASE REPORT

B. M., aged 45 years, Hindu, female was admitted in Kalimpong Sub-Divisional Hospital, District Darjeeling on 1-3-1976 with the complaints of a lump in the right lower quadrant of the abdomen. The swelling was noticed by the patient 25 years ago when it was of the size of an orange and it slowly grew to the size of 6"×4"×3". The patient had periodical attacks of colicky pain, constipation and occasional vomiting for the last 10 years.

Examination—Abdominal examination revealed a tense cystic lump occupying the right lumbar region and right iliac fossa. It was non-tender, freely mobile from side to side and less mobile on the vertical axis. A provisional diagnosis of mesenteric cyst was made. Routine investigations were within normal limits.

Operation—A right paramedian laparotomy under general anaesthesia revealed a cyst arising from the mesentery of the distal ileum and adherent in a few places to transverse mesocolon and greater omentum (Fig. 1). The cyst was easily dissected off these adhesions and from the mesentery. It was thick-walled, calcified and dirty white in colour containing soft gelatinous material and a hair ball of 3'' diameter (Fig. 2). A part of the cyst-wall was thick and cartilaginous.

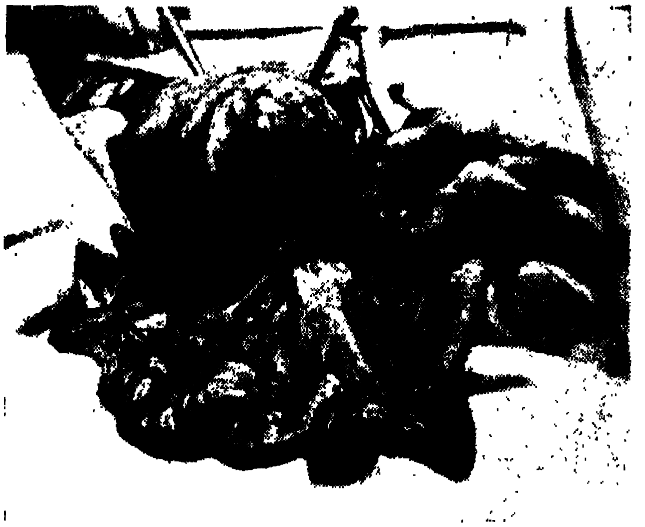

FIG. 1—SHOWING THE CYST ARISING FROM THE MESENTERY

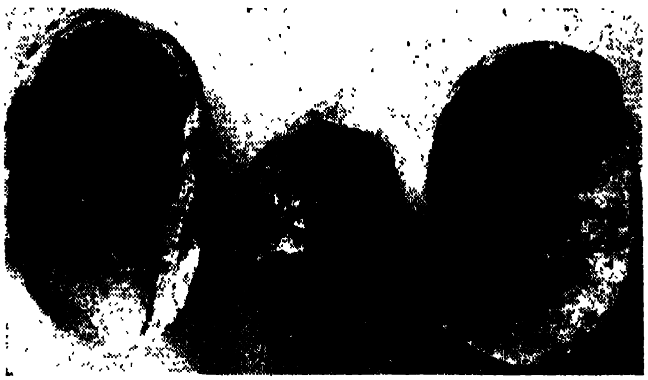

FIG. 2—SHOWING THE CALCIFIED CYST SPLIT OPEN TO SHOW THE HAIR BALL

Postoperative period was uneventful and at follow-up after 6 months the patient had no complaint and there was no sign of recurrence.

DISCUSSION

Dermoid cyst of the mesentery is sufficiently uncommon to merit the report of this case. Harding Rains and Ritchie (1975) classified mesenteric cysts into the following varieties: chylolymphatic, enterogenous, urogenital remnants and dermoid cysts (teratomatous cysts). Of these, the first 2 varieties are common but the dermoids are comparaively rare. Also calcification of the cyst-wall may occur rarely (Walker and Putnam, *loc. cit.*) as in the present case.

Sub-Divisional Hospital, Kalimpong
*F.R.C.S.(Eng.), Surgeon
**M.B.B.S., Medical Officer

SUMMARY

A case of calcified dermoid cyst of the mesentery is reported. The condition is rather uncommon.

ACKNOWLEDGMENT

The author is grateful to Dr. R. K. Mukherjee, Superintendent, Kalimpong Sub-Divisional Hospital for the permission to publish this case.

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2

Multiple Pedunculated Fibromatosis of Breast

ANIL KUMAR GUPTA*
SUBHASH CHANDRA ATRI**
Y. P. NAITHANI***

Pure fibroma of the breast is a rarity. While reviewing literature two references were found from India (Agarwal and Mishra, 1968; Prasad *et al.*, 1973) about pedunculated solitary fibroma of nipple and hardly any report about multiple pedunculated fibromatosis of breast. One such case, seen in surgical wards at the S. R. N. Hospital, Allahabad, is being reported.

CASE REPORT

Mrs. H., 35 years, Hindu, female was admitted in the hospital on 18-8-1975. She complained that for the last 2 years multiple nodular swellings had been growing in left breast, starting as pea-sized swellings, and they now have grown to be lemon sized. The swellings were painless and she had no itching or ulceration or any discharge from the swellings or from the nipple. She was married 18 years back and had 2 male children, both hale and hearty. Her menstrual cycle was regular. There was no history of trauma to the breast. No one else in her family had suffered from such ailments.

Examination—On examination, she was found to be a lean and thin woman of 5′, weighing 35 kg. Her pulse was 84/minute and BP was 110/74 mm. Hg. She was moderately anaemic. Her right breast was normal. The left breast was studded with nodules scattered all over the breast within 15 cm. of the nipple (Fig. 1). The nodules distorted the normal anatomy of breast and were firm, non-tender and tethered to skin. They were freely mobile and not fixed to any deeper structure. The nipple was partly destroyed. The regional lymph nodes were not enlarged.

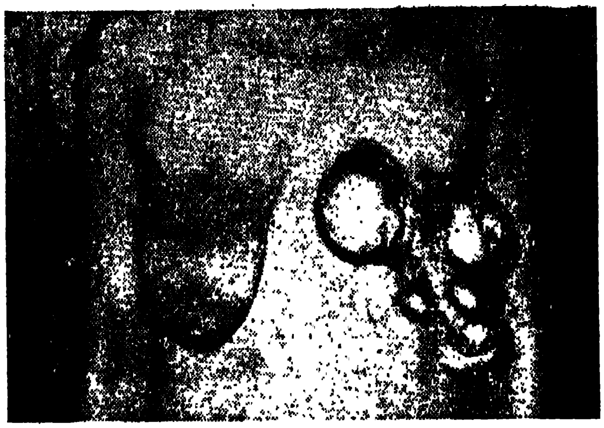

FIG. 1—SHOWING THE NODULES SCATTERED ALL OVER THE LEFT BREAST

Investigations—Routine investigations were normal except for haemoglobin which was 7.5 g. per cent and general blood picture suggested microcytic hypochromic anaemia.

Management—An intensive parenteral iron therapy helped to boost her haemoglobin to 11.5 g. per cent when a simple mastectomy was done and the entire tissue mass was sent for histopathology. The resultant loss of tissue required a partial thickness skin graft and she was discharged after one month.

Pathology—The specimen submitted for histopathological examination consisted of nodules, firm, grey in colour and varying in size from 3 cm. to 10 cm. The cut surface revealed the nodules to be firmly incorporated in subcutaneous tissue and of uniform greyish-white appearance.

Several blocks, made from these nodules, were studied and all had identical appearance. Microscopically, it showed bundles of spindle shaped cells running in various directions. At places, they were transversely cut while at others they presented a longitudinal appearance (Fig. 2, H. & E., × 100). No adeno-

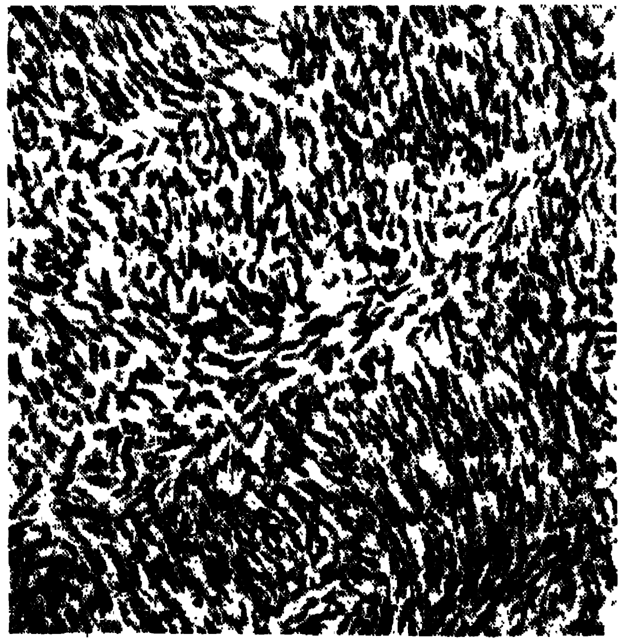

FIG. 2—SHOWING BUNDLES OF SPINDLE SHAPED CELLS RUNNING IN VARIOUS DIRECTIONS IN MICROPHOTOGRAPH

Postgraduate Department of Surgery, M. L. N. Medical College and S. R. N. Hospital, Allahabad
*M.S., Reader
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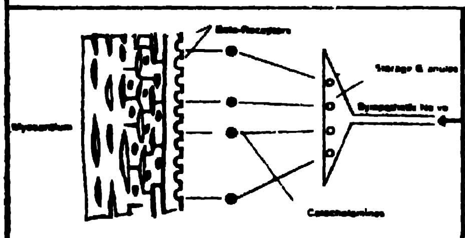
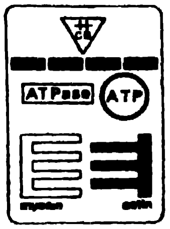


INHIBITION OF CATECHOLAMINE UPTAKE AT THE SYMPATHETIC NERVE ENDINGS IN THE MYOCARDIUM



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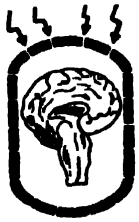

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tous structure was seen. No mitotic activity could be seen any of the sections. The final diagnosis, therefore, was bromatosis of breast.

DISCUSSION

According to Conway (1956) it is a soft pedunculated tumour connective tissue origin differing from papilloma of skin ly in greater involvement of subepithelial tissue. Lund 957) gave it the name of fibro-epithelial papilloma or kin tag or cutaneous polyp. The histogenesis is obscure. here is no relation to trauma or menstrual irregularities or rity. Lennhoff (1914, cited by Agarwal and Mishra, *loc. cit.*) hought the aetiology to be of inflammatory or irritative nature ut Stout (1953) considers it to be a congenital malformation hich becomes apparent only in middle life and calls it "fibroma olle". Till its real nature is known, it may be considered to be benign tumour of connective tissue on the skin of breast and ipple.

SUMMARY

A case of multiple pedunculated fibromatosis, not reported arlier, is presented. The literature is reviewed and the nature f growth discussed.

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3

Mastoid Abscess in a Patient with Typhoid Fever

H. MAJLESI*, A. NADERI**
F. ANVARI AZAR***, H. FAROUGH****

This is a rare complication of typhoid fever and is reported nly in infants and children. Here an adolescent case, who was spitalised because of long term fever of unknown origin nd after 28 days developed a mastoid abscess of typhoid igin, is reported.

CASE REPORT

The patient is a 14-year-old boy who was admitted in the eiz Medical Centre of Isfahan University because of fever ith chill and vomiting, diarrhoea and headache since 15 days rior to his admission. His family and personal history was nremarkable.

Examination—On admission in the hospital the patient was conscious, oriented and presented with fever of 38°C. Physical examination of the head and neck, cardiovascular and respiratory systems revealed nothing significant. On abdominal palpation, there was no organomegally. Examination of the genito-urinary system was normal and there was no adenopathy.

Investigations—Total WBC—23000/c.mm. with 67 per cent polymorphs, 28 per cent lymphocytes, 4 per cent monocytes and 1 per cent eosinophils. Haemoglobin was 12 g. per cent. SGOT—36 units, SGPT—14 units. Total bilirubin—1.2 mg. BSP—8 per cent, alkaline phosphatase—3 KA units. Cholangiography and liver biopsy were within normal limits.

Gastric juice for acid fast bacillus was negative. VDRL test was negative. Blood urea—28 mg. per cent and fasting blood sugar—110 mg./100 ml. Serum protein electrophoresis was within normal limits and serum calcium was 5 mEq./litre. Chest x-ray— normal. Blood culture on several occasions was negative. Widal seroagglutination test was positive (titre TO—1 in 380 and TH—1 in 380). Wright agglutination and stool culture were negative.

Course—During his stay in hospital, patient was running a temperature up to 39.2°C and finally on the 28th day of his hospitalisation, an abscess appeared on the left mastoid region which was operated upon and about 40 ml. of pus was drained. Culture revealed *S. typhi* and it was negative for fungus and other organism.

X-ray—X-ray of the mastoid bone revealed reduced air cells.

Treatment—Treatment was started with chloramphenicol and in two weeks time fever disappeared completely and the patient was discharged in a good condition.

Follow-up—Follow-up in clinic revealed no signs of infection any more.

DISCUSSION

Bone and joint manifestations are very rare complications of salmonella infection.

This complication usually appears as an abscess or necrosis of the bone and it is mostly seen in infants and children.

This complication usually involves the long bones particularly the tibia and rarely the small or flat bones. Bone and joint manifestations are late complication or they may appear during the convalescent period, particularly after severe form of this disease.

The organism may be seen in culture of the pus and in necrotic material drained from the involved areas. This complication may be acute or chronic but the chronic form is mostly seen.

SUMMARY

A 14-year-old boy was hospitalised because of fever of unknown origin in the Feiz Medical Centre of Isfahan University, Iran.

Laboratory investigations revealed only positive widal agglutination and after 28 days an abscess appeared in the left mastoid region.

Abscess was drained and culture revealed presence of *S. typhi* which was treated with chloramphenicol for 2 weeks and fever disappeared.

Medical School, Isfahan University, Isfahan, Iran
*M.D.
**M.D.
***M. D.
****M.D.

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Rural Health Care: Problems and Priorities

That India lives in villages is a fact too well-known to need reiteration. According to the 1971 census about 438 million out of about 548 million people live in about 5,75,721 villages scattered all over India. It goes without saying therefore that utmost emphasis should be laid on the health care of the rural community in India. The Bhore Committee recommended the establishment of PHCs and SHCs to facilitate the delivery of health care and medical services to the rural masses. The rural health centres were intended to be the focal points for radiating integrated health care services, both curative and preventive, to the rural areas served by the Community Development Block. The objective was laudable but subsequently it was found difficult to attain due to a variety of reasons originating from the existing socio-economic conditions of the villages and the system of medical education inherited from the alien rulers. During this decade serious concern has been voiced by both our Government and the medical profession over the tardy progress of health care for the rural population.

With the debate raging in both the developed and developing countries on alternative approaches to the problem of rural medical care the health experts, medical educationists and advocates of rural upliftment in our country also are thinking in terms of alternative methods for delivery of effective health care to the neglected rural community. According to a school of thought the existing infra-structure for catering rural health care through the PHCs is most inadequate for the purpose. They argue that it is just not possible for the medical officer of the PHC and the para-medical and other staff attached to it to cover the entire population of the Block, which has now increased in most cases from 60,000/70,000 to 1,00,000 or more. The number of doctors at each PHC and SHC has no doubt been increased in recent years following the integration of MCH and family welfare. But the effective coverage usually does not extend beyond the radius of 5 miles in case of PHCs. The services of the ANM at the subcentre hardly extend beyond the village where she is stationed and those of a basic health worker hardly beyond a 3-mile radius. The medical officer at the PHC, who is generally overburdened with the demands of medical care of the ailing villagers, gets little or no time for promoting health education and other preventive services. There are also some administrative and psychological factors which act as disincentives for the PHC doctors and the staff. The budget for drugs and equipment or improvement of hospital building and sanitation, etc., is often most inadequate for the needs. There is again hardly any supervision, guidance or reference services available to the doctors working at the PHCs. On top of all these lies the interference of local leaders and Block Samitis and BDOs. These and sometimes the lack of an impartial and equitable application of transfer and promotion policy or scope of self-development, etc., are generally supposed to be the immediate reasons that cause frustration to the doctors who in their turn consider posting in a PHC or SHC as a kind of punishment and try their best to secure transfer as early as possible to a city or urban centre.

It is undeniable that frustration exists, whether it surfaces or not, among a number of medical officers posted in the rural health centres and this frustration can be traced back to their training in the atmosphere of urban hospitals and specialisation which did not equip them to function as generalists capable of tackling preventive and curable health service in the villages. Over and above, the absence of proper motivation during the years of study failed to prepare them mentally for this type of service in a different environment. Elsewhere in this issue a correspondent has attributed the maladjustment of doctors with rural environment to their 'urban bourgeois and petty-bourgeois background'[1]. There are others who think that without a radical change in the social outlook of the doctors not much can be achieved. Unfortunately this is a far cry and we cannot ask our rural brothers and sisters to wait for an indefinite period for the ushering in of a social revolution in the matter of delivery of health care. Hence arises the need for a minimum time-bound programme for re-organising the health infra-structure and re-motivating our medical and para-medical personnel for the social goal of our development.

We have, however, a number of problems to be sorted out and solved in phases. The present Government at the Centre has not yet spelt out in details its total health care policy and seems to be in two minds in the matter of utilisation of the qualified medical manpower under a suitable national health scheme. It was admitted in the conference of State Health Ministers and Health Secretaries held in New Delhi in April 1977, where the draft 'National Plan for Health Care Services in the Rural Areas'[2] was presented and discussed, that even "after 30 years of Independence and the setting up of 5372 Primary Health Centres and 37775 subcentres we have not made a significant impact on the health status of the rural population or the urban poor"[2]. The draft Plan also posed the question before the participants "as to whether the investments in the field of rural health so far made have been of the right order and in the right direction and have used the appropriate technological process"[2]. The draft Plan wanted all to realise that "improvements cannot be brought about merely by increasing the number of doctors or the output of medicine, but by making each individual realise the need for simple steps in sanitation, prevention, promotion, etc., of health activities some of which can make remarkable changes in the morbidity and mortality pattern in our country"[2]. Proceeding from this premise the Plan put forth the proposal to train some workers, drawn from the community preferably with a formal education of at least up to VI standard or up to X standard if the community could select such persons, who would be given training in simple and basic health services through a three-month course and provided on completion of training with a kit containing common remedies of the modern system and also the traditional systems in vogue.

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[1] NANDY, M. N.—*J. Indian M. A.*, **70**:243, 1978.

[2] *NIHAE Bulletin*, **10**:134, 1977.

The Indian Medical Association welcomed the Union Health Ministry's move to pay special attention to rural areas in the matter of health care and made it clear at the outset that it would have no objection if the Community Health Workers "were trained only to do such duties as health education, look after sanitation and first-aid or help in preventive work thereby helping medical officers. But to train them so that they undertake the treatment of common ailments and that too both in the modern scientific and the traditional systems is conceptionally wrong"[3]. The IMA refrained from going into the financial soundness of the programme but opined that Rs. 1200 per annum per worker including the cost of medicine was most inadequate. It, however, questioned the aim of the programme which, it held, was for all practical purposes the production of a new cadre of quacks. The basic objection of IMA was that the scheme pre-supposed that village people did not require an effective and efficient health service and were prepared to accept a third-grade medical service catered by workers trained in a hotch-potch method combining modern science with traditional systems and yoga. IMA upheld the right of the rural men, women and children to receive a medical care as good as that for the urban population. Secondly, it discarded as myth the charge that doctors did not go to villages and asserted that an overall survey of the PHCs would tell a different story—almost all of them were manned. Besides, Government did not take into account the existence of a large number of a duly qualified practitioners, who found it worthwhile to practise in villages. IMA argued that if a doctor in Government service did not go to a village health centre, the reasons therefor must be looked into, but the answer to this problem did not lie in foisting the quacks on the poor villagers. It further pointed out the element of risk involved in the appointment of such Community Health Workers, since with three months training and being armed with a certificate they would try to establish themselves as doctors, forgetting their normal vocation like agriculture, school teaching, house-wifery, etc.

The question may be raised if the IMA has any alternative means of health care for the villages that can replace the Community Health Workers Scheme. In the opinion of the IMA preventive aspects of rural health care can be well looked after by a group of trained para-medical persons by whatever name they are called. Dr. A. P. Shukla, past-President of IMA, has suggested that the "preventive aspect of rural health care could be best attended by organising a net-work of health-guards on the pattern of home-guards"[4]. There should be one such health guard for every one thousand rural population to look after the village sanitation, cleanliness, water, easing habits of villagers, mosquito and fly nuisance, hygiene of the village and burning of refuse, etc., and work as a liaison between the village and the subcentre or PHC for catering primary health care and medical aid. The present President of IMA, Dr. J. V. R. Sarma has suggested the raising of a corps of community health workers from the educated members of the rural community. To put in his own words, "a course of training be imparted to the intelligent and educated members of the community who have attained an age and stage in life where their bearing can carry some weight and they can throw some light on ways of healthy living. These community health workers can only notify incidence of diseases and help people to receive treatment from the nearest qualified personnel"[5]. Dr. Sarma further suggests that these health workers should work under trained multipurpose workers raised from the cadre of sanitary inspectors, pharmacists, trained nurses and nurse-midwives, who in their turn will be trained to render first-aid for all common ailments under the direction of a qualified medical person.

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[3] Indian Medical Association—IMA Agenda Papers (Set 1), 37th Annual Meeting of the Central Council, December 25-26, 1977, Bombay, pp. 49-51.

[4] SHUKLA A. P.—*Ibid.*, pp. 52-53.

[5] SARMA, J. V. R.—*J. Indian M. A.*, **70**: 198, 1978.

Elsewhere in this issue Singh[6] suggests utilisation of each medical college particularly, the newly opened ones during the last 5 years, for training doctors and para-medical staff in such a manner as that they can take up responsibility for the total health care needs of any population with the ultimate aim of holding responsibility for at least 2 districts. He suggests establishment of central hospitals each having 200 beds only in place of large hospitals with 500 to 1,000 beds and 5 to 6 peripheral hospitals having 50 to 60 beds each with laboratory, operation theatre, labour room, etc., and prefers attaching each peripheral hospital to a number of rural subcentres or clinics. He suggests that all patients should be initially examined at the nearest clinics or peripheral or local hospitals and only the complicated cases may be treated in central hospitals and these patients too should return to the peripheral hospitals as soon as they are able to do so. Singh[6] also recommends training of the medical students, interns and residents by well planned rotation between subcentres or clinics, peripheral and central hospitals and opening of a department of community medicine and public health, attached to the central hospital, which should undertake the training of multipurpose health workers and that of the first level health assistants to be recruited from primary school teachers, *patwaris* and village postmasters. Nandy[1] prefers qualified doctors to remain in the urban and semi-urban areas, but they will have to visit rural subsidiary health centres for definite hours on fixed days. These doctors will be assisted by para-medical staff at the rate of 20 such staff for 2 *Anchals* of 20,000 people to be recruited from local matriculates and trained for 2 years in district hospitals. These para-medical workers, Nandy[1] suggests, may be taught to give first-aid, inoculate against infectious diseases, cater medicine prescribed by doctors, conduct normal deliveries, take antenatal and postnatal care and report on all serious cases to doctors.

Khader[7] suggests in her article in this issue that each medical college should be entrusted with the responsibility of health care for a particular segment of rural population and the PHCs should be strengthened by a net-work of peripheral health centres in the form of community or mini-hospitals of 22-25 beds to be scattered all over the country-side and operated by Government agencies, wherever possible, or on contributions derived from the community itself. Guha[8] on the other hand recommends in his article the expansion of the PHC in each rural Block to at least a 30-bed hospital fully equipped to render medical aid and undertake effective public health measures. He wants posting of 6 full-time qualified doctors to each upgraded PHC, which should have well furnished accommodation for consultants, specialists, their fully trained assistants and a few medical students of the neighbouring medical college. Besides suitable augmentation of every PHC with medical and para-medical staff, drugs, medical instruments and appliances on the standard of a medical college, Guha wants each PHC to be assisted by a net-work of 6 to 8 expanded SHCs having at least 10 beds each and requisite doctors and staff to cater to the health needs of 75,000 to 1,50,000 of rural people.

Without assessing the merits or demerits of all these alternative approaches it can be safely said that in the existing social and economic set-up of our country the reality should never be lost sight of. Right or wrong the PHCs have come to stay as focal points from which the health efforts of the Government radiate to the rural areas. In the absence of a viable alternative the primary attention of our health planners has to be directed to the augmenting of the status, staff and financial allocation for the PHCs. This is to be done, of course, after a proper survey of the needs of the population in the areas served by the PHCs. There is also no dispute about the need for providing specialist services in these rural centres. Such a system is already in vogue in the State of Maharashtra, but it is reported that the local bodies and subcentres are experiencing difficulties there in making arrangement for transport of the specialist doctors from city to the rural areas and back and arranging for regular payment of T.A. to doctors who volunteer to reach the areas on their own. If the respective State Governments can make suitable arrangements to obviate these difficulties specialist services can be extended to the PHCs and subcentres and the standard of rural health care can be brought on par with that available in the cities. As regards the Multipurpose Health Workers or the Community Health Workers much of the apprehension of the doctors and the rural people can be removed if these workers are trained and deployed only for looking after the preventive aspects.

It is obvious that the solution of the medical aid problem in rural areas does not lie in mobilising the health workers alone. Medical care cannot be scientifically catered to the rural people without the assistance of qualified doctors and even accepting the handicap due to the urban bias created in many of our doctors by the present system of medical education, we think there is no real dearth of qualified medical men. Unemployment amongst medical graduates has been reported in several States in India and the number of applicants for posts of doctors advertised by some State Governments is often reported to be 3 to 4 times of the declared vacancies. With the fresh addition of 12,000 medical graduates every year to the pool of qualified doctors, there is absolutely no justification to re-start the licentiate course in medicine to meet the shortage of qualified doctors for the rural areas. Moreover there is no guarantee that those licentiates will settle down in the rural areas instead of in the towns and continue to serve the rural population for all time to come. Time and again the IMA has insisted on the Government that a survey should be undertaken by all State Governments to determine the rural people's need of health care and the deficiencies existing in various areas. If such a district-wise survey of qualified medical manpower (including the practitioners of indigenous systems) could be conducted it would be easier for the Government to have a clear idea of the maldistribution of qualified doctors in the country and it would not be difficult to fill in the gaps.

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[6] SINGH, KULDIP *J. Indian M. A.*, 70:240 1978.

[7] KHADER, (MRS.) NILOUFER—*Ibid.*, 70:236, 1978.

[8] GUHA. P. K.— *J. Indian M. A.*, 70:239, 1978.

The Union Health Ministry proposed in its draft National Plan for Health Care Services in the Rural Areas that students graduating/qualifying in the field of various systems of medicine should serve in the rural areas for a period of 2 years. This would serve, according to the Plan, a number of purposes, namely, increase employment opportunities for such graduates, provide health care to the rural population by qualified medical practitioners and bring about a revolution in the social consciousness of the medical graduates by making them aware of the health needs of the community. The following specific proposals have been made in the draft Plan in respect of graduates in modern scientific medicine: (1) to extend the period of temporary registration, which is now one year, to 3 years before such graduates become eligible to get registration and make it a pre-condition that they must work in rural areas on specific jobs to be offered to them by the Government; (2) to restrict admission to postgraduate studies only to such graduates as have served in the rural areas for 2 years; (3) to create suitable incentives and disincentives for medical graduates to ensure the availability of their service in rural areas[2]. The scheme also holds out the assurance that these medical graduates will be free at the end of 2 years of such rural service to do postgraduation, join regular Government service, set-up private practice, etc. The Union Health Ministry is optimistic that this 2-year rotation would make 30,000 to 32,000 doctors available in the rural areas.

It has to be admitted however that in the present stage of development of our country in spite of the large number of rural health centres established during the last 3 decades and the provision for inducing doctors to serve in rural areas, there will still be many backward regions or even undeveloped areas of a district where it is next to impossible to cater health care and medical aid from static health units like PHCs or SHCs. The rural population in such areas can only be covered by well-planned mobile medical service.

About the restructuring of the medical colleges and hospital services or the optimum utilisation of the capacities of the PHCs and SHCs, and the construction of newer kinds of peripheral hospitals, it would be unwise for a country with constraints of resources for various developmental activities to experiment at this stage with proposals involving large-scale financial involvement. Medical profession, health planners, medical educationists and public health experts should put their heads together before formulating a full-fledged policy on this issue. There should be long-term and short-term time-bound programmes for reaching health care to the door steps of every rural household. If necessary, the old ideas, attitudes, patterns of administration and working habits will have to be drastically changed and the desired social motivation and idealism for serving the rural and backward people will have to be inculcated firmly in our medical students .

Whether placement of doctors should be made on voluntary or compulsory basis is a matter on which the country may afford time to arrive at a final decision but there can be no two opinions as to the urgency of ensuring potable water supply in rural areas and building up a mass movement for educating the rural population in public health and hygiene. The rural Branches of IMA functioning in different States have been trying to build up a health consciousness among the rural people through community health projects started by them on their own resources. The IMA's scheme for re-organisation of national health services is already before the country. It has been drawn with an eye to the economic condition of the country and can be implemented in phases. Because of its great patriotic past and tradition of service to the people the IMA has a moral right to claim that its considered views on rural health care as outlined in the above scheme should be examined, duly assessed and incorporated in the proposed National Plan for Health Care Service in the Rural Areas.

B. RAY CHAUDHURI

CURRENT MEDICAL LITERATURE

Improved Health Coverage

ROBAYE, J. C. (*Bull. Pan Amer. Health Organ.*, 11:195, 1977) writes:

Ideally, a health system should provide complete coverage. That is, it should give the public access to virtually all kinds of health care as needed.

The term "primary health care" refers to all care provided at the primary level of the institutional health system, and also to care provided through local community activities outside the institutional system.

In promoting the drive for broader coverage, a concerted effort is needed to link "informal" community workers providing primary care with the primary care level of the institutional system.

In addition, experience has shown that substantially and permanently improved health conditions depend on more than just health care programmes with active community participation; they depend on a combination of these programmes and sustained economic development.

One strategy, called the "primary care approach," is now being given priority attention by the Governments of the Americas. This strategy seeks to promote the forementioned link between the formal health services and informal community health activities. The ultimate aim is to generate a synergistic pattern of activity that can significantly improve the overall condition of community life.

Combating Malnutrition in Rural Community

GOPALAN, C. (*Swasth Hind*, 21: 288, 1977) writes:

Malnutrition problem in India is not as unsurmountable as it is generally believed. It can be solved through judicious use of inexpensive local foods. What we need is an intensive health education programme; of which nutrition education would be a part. It would help people in rural areas to prepare nutritious recipes based on locally available foods for feeding their children.

Blueprint for Health for All

MAHLER, H. (*W.H.O. Chron.*, 31:491, 1977) writes:

Each society must determine what is essential, in keeping with its social expectations and economic capacity. I would hazard as minimum indicators of achievement an infant mortality rate of less than 50 per thousand live births and a life expectancy at birth of more than 60 years.

I suggest that they include adequate food and housing, with protection of houses against insects and rodents; water adequate to permit cleanliness and safe drinking; suitable waste disposal; services for the provision of ante-natal, natal and post-natal care, including family planning; infant and childhood care, including nutritional support; immunisation against the major infectious diseases of childhood; prevention and control of locally endemic diseases; elementary care of all age groups for injury and diseases; and easy access to sound and useful information on prevailing health problems.

We must learn to live with fewer drugs if we are to master the health situation.

As another aspect of WHO's contribution to health development in countries, we are about to introduce a new system of programme budgeting and management of WHO's resources at the country level.

CURRENT TOPICS

1

Health Programme in the Rural Set-up

B. C. GHOSAL*

The problems of health care of a nation are complex and their solution depends on their proper assessment. India is essentially a rural country with 80 per cent people living in about 600 thousand villages characterised by an unsatisfactory condition of sanitation, a stagnant economy and a poor educational standard. The high toll of death and incidence of ill-health are mostly preventable. The diseases are caused by three main crucial factors, viz., general malnutrition, insanitary surroundings and ignorance.

BHORE COMMITTEE

Before Independence the limited health services available in the country were scattered in towns and cities and a small number of ill-equipped dispensaries in rural areas, located at long distances. The Health Survey and Development Committee (1946), popularly known as Bhore Committee, gave shape to the organisation of health services for rural areas. The Committee found that the level of health in the country was very low; the death rate was 21.8 per 1000 and infant mortality rate was 183 per 1000 of life births while expectation of life at birth was 27. Maternal mortality rate was calculated somewhere at 20 per 1000 of live births. Cholera, smallpox, plague and fevers together accounted for almost the total mortality. The largest single cause of death under fevers was undoubtedly malaria. The Committee considered that two thirds of the mortalities in the country were preventable and therefore should be prevented.

The Committee recommended two types of primary units for rural population, one was a long-term measure aimed at having a unit to serve a population of 10,000 to 20,000 and the other a short-term programme to be implemented immediately. It was also suggested for the short-term programme that there should be a 30-bed hospital to serve 4 primary health units. These primary health units were linked up to secondary units, which should start with a 200-bed hospital with provision for raising the bed strength to 500 for referral services and supervision and guidance. In long-term programme, it was suggested that the district headquarters should have a hospital with 2500 beds. It was also felt that the most effective way in which health and family welfare services could be made available to the rural areas was through Primary Health Centres and the subcentres. From these centres, heatlh education services and amenities could radiate to the rural areas.

Achievements—Following the recommendations of the Bhore Committee Primary Health Centres and subcentres have formed an integral part of the Community Development Programme since 1952. Each PHC with about 8-10 sub-

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Directorate General of Health Services, Government of India, New Delhi

*Assistant Director General(HA)

centres covers a population of about 1,00,000. It provides a package of integrated health care both preventive and curative, family welfare planning, maternity and child health, school health and nutrition education. It is also responsible for health education and collection of basic health statistics.

In a concerted drive to extend health care to the rural population as many as 5,372 PHCs and about 38,000 subcentres have been set up in the country since Independence serving the rural population of about 500 millions in 5247 Community Development Blocks.

The first three Five-Year Plans concentrated on creating the basic infra-structure for rendering more effective health services. At the end of the Fourth Plan, an effective base for rural health care has been created through strengthening of the PHCs.

FAMILY WELFARE AS INTEGRAL PART OF HEALTH

Family Welfare Programme is the integral part of the development plan as a whole. In the Five-Year Plans emphasis has been laid on population control. The clinical approach has been changed and with this change, the 'small family' message and family planning services are taken to the homes of the people. The object of the Family Welfare Programme is to bring about reduction in the birth rate, i.e., 25 per 1000 by the end of the Fifth Plan. Eligible couples are free to choose any of the scientifically approved methods of contraception, which include the loop, sterilisation of males and females and conventional contraceptives.

Many significant things happened during the Fourth Plan and in the three years preceding it. The programme of family welfare was consolidated. It expanded further. It became goal or target oriented. There was greater emphasis on integration of health and family planning and MCH services and population education was introduced for the first time in some schools and colleges.

STRATEGY OF FIFTH PLAN

With the initiation of a long-term national health strategy in the Fifth Plan, the movement has been given a thrust on i) increasing the accessibility to medical facilities in rural areas; ii) raising the number of PHCs at the rate of one PHC per Block and one subcentre for 10,000 population; iii) intensification of efforts to control and, if possible, to eradicate the major diseases; iv) promotion of preventive medicine through improved environmental sanitation, proper disposal of human wastes, water supply and immunisation and v) nutrition and health education. The placement of the full complement of medical and para-medical personnel at all PHCs and correction in the shortest possible time of the existing rural-urban imbalances are also part of this strategy.

The Fifth Plan is a land-mark in the growth of the Family Welfare Programme. It has, on the one hand, found greater integration with the general health, nutrition, and MCH schemes and has on the other become a vital part of the total process of socio-economic change which India is going through, particularly since the launching of the national population policy in April 1976. The Family Welfare Programme is playing a substantial part of its own strength and speed in the overall development of health services in the country.

MINIMUM NEEDS HEALTH PROGRAMME

Under the Minium Needs Health Programme a large outlay has been made in the Fifth Five-Year Plan for providing the basic minimum health needs to rural India. The approach to the Fifth Five-Year Plan document states that the availability of health facilities in rural areas continue to be lop-sided and the present standard of 1 PHC for a Block population of 80,000 to 100,000 with 8-10 subcentres, which serve a population of 10,000 each, may be accepted as the minimum norm for the Fifth Plan. The main thrust is directed at making up deficiencies in buildings, staff, equipment, drugs, etc., in a co-ordinated way (at the PHC and subcentres). It further states that emphasis in rural health will have to be put on preventive medicine, family welfare, nutrition education, control of morbidity with adequate arrangements for referring serious cases to an appropriate high echelon such as upgraded PHC, i.e., 30-bed rural hospital/*Taluk*/district hospitals.

The three-tier scheme announced by the Union Health Ministry for re-organisation of the health services makes a distinctive departure from the direction in which health facilities have developed for about 30 years. The new scheme envisages the creation of a tier of village health workers, drawn from local villages and trained in basic health practices. They will be supported by a network of PHCs with basic medicare and diagnostic facilities for special care. The plan is to draw out doctors, even of the level of professors and associate professors from their ivory towers into the practical field where they will meet the rustic village patient seeking medical attention.

Unlike as in the past, when the patient was taken to the doctor, it is the doctor who will now seek the patients, particularly in the rural areas which have been neglected all these years. The three-tier health service plan is a scheme to involve all the medical colleges in the "delivery of health services in all the villages". It is proposed to attach initially 2 or 3 PHCs to each medical colleges so that the undergraduate medical students are fully exposed to the village community and they gain personal knowledge of the morbidity of diseases afflicting it. At the same time, it will ensure that the entire rural population get access to the best possible treatment from specialists. The scheme includes neighbourhood dispensaries and PHCs at the lowest village and Block level, service hospital like subdivisional and district hospitals at the middle level and specialist institutions, teaching hospitals and regional hospitals at the final referral stage.

MULTIPURPOSE HEALTH WORKERS' SCHEME

The integrated approach for the delivery of a package of health, family welfare, MCH and nutrition services to the community has been accepted in the Fifth Five-Year Plan for which multipurpose workers would be needed. It has been decided to introduce multipurpose approach on the phased programme throughout the country in the Fifth Five-Year Plan period. The adoption of multipurpose approach has added a new dimension to the training programme hitherto conducted separately for family planning personnel and workers engaged in various other health programmes.

Under this scheme a comprehensive health and family welfare care will be provided through a team of two workers (one male and one female) at the subcentre level. It is now envisaged that by the end of the Sixth Plan there would be one subcentre for every 5000 population with a team of one female and one male worker. However, taking into consideration the existing 1 male worker and 1 female worker and the workers that will be available by the end of the Fifth Plan, it is envisaged, that there will be one female worker for every 8,000 population. In addition to their duties of providing health and family welfare and nutrition education, these workers will also be responsible for providing first-aid and treatment for minor ailments.

There will also be a team of one male supervisor and one female health supervisor to supervise the male and female health workers under the scheme. All these supervisory personnel will be designated as Health Assistants who will play their role of assisting the doctor. They will also be trained and equipped to give specific remedies for simple day-to-day illness but at a high level of competence. They will carry a medical kit for the curative services that they will perform. While the Health Assistants will have a supervisory role, they are also expected to function as health workers in their own area carrying out the same duties and responsibilities but at a higher level of technical competence. They will be specially responsible for the promotive and preventive health measures and all the national health programmes. The female Health Assistant will take particular care of the children and expectant and lactating mothers.

The first assistance that any community needs in the form of health services has to be provided in the community itself. It is necessary to provide these services by trained personnel in public health. Some other services may be provided by fully trained professionals, who are self-employed. It is, however, erroneous to assume that these services should be provided only by these few categories or professional staff. At the community level, what are needed most is not so much the professional experts as nearness to the community, its confidence, rapport with the people, willingness to assist, low cost and capacity to spare the needed time. It is, therefore, necessary that some of these services should be provided by the people in the family itself and also by the part-time trained para-professional persons who operate on a self-employment basis.

Various steps will have to be taken to organise the large number of para-professionals, who will be needed in every community to provide treatment of simple day-to-day health and medical services. The aptitude of such work is development within the family itself through participation in the provision of such services or the attending of sick persons.

Community Health Workers' Scheme

The emphasis on the creation of a large number of semi-professionals and part-time health workers in the community itself will bridge the gap between the subcentre and the community. The Government of India in consultation with the State Governments formulated a scheme, which seeks to organise para-professionals trained from the community and working on a part-time self-employment basis to supplement the efforts of the multipurpose workers with the object of involving the community in its health care.

The scheme envisages to select and train men and women below the age of 30 years and be able to absorb the elements of human science. The person selected should be functionally literate, be able to read and write fluently. It would be preferable if he/she has a formal education of at least up to X standard. They will be selected by the community. They will be provided with medicinal kits. These medicines will be from the formulary of all systems and relatable to simple remedies for common ailments occurring in the villages. Particular attention will be paid in the training towards infant and child care. The Community Health Workers, as they will be called, will advise expectant mothers for immunisation against tetanus, etc. The community will be responsible for their working within normal bounds.

The Community Health Workers' Scheme is a compromise between the health needs of the rural population of our country and the resources as available to meet them. In reality it combines the good features of modern system of medicine with the system of providing minimum of health services through part-time persons drawn from the community itself, who work on self-employment basis.

As a result of this scheme, it is expected that the villagers will be able to get some type of curative health services at their door-step by their own community members who are well trained to provide them these services. This will not only save the villagers from the inconveniences which they have to face in going to PHCs but will also help the health personnel in devoting their time in other aspect of health programmes.

It may be indicated that the introduction of the Community Health Workers in rural areas is not expected to replace the existing and proposed systems of the delivery of health services to the rural population. These workers, on the other hand, are expected to supplement the activities of the health workers in a way that they will create an agency which is close to the people and would create a pattern of medical and health services that is qualitatively better and is within the financial resources of the country to be available in the near future.

2

Rural Health Care[†]

(MRS.) NILOUFER KHADER[*]

The problem of rural health care in India is both colossal and urgent. Even after thirty years of Independence, we have not made up our minds regarding the type of health care needed for the teeming millions of rural India or the means of implementing this health care.

The current snags in providing medical relief to the rural masses are well known. About 80 per cent of the total population live in rural areas, yet has only 20 per cent of hospital beds and an equal percentage of doctors to serve them. It is unrealistic to expect that the distribution of doctors will be strictly proportionate to the distribution of the population but there can be no doub that there is gross imbalance in the existing pattern.

EXPERIMENTS IN OTHER COUNTRIES:

Some countries have adopted measures for extending health care to the rural people through utilisation of the qualified, trained para-medical personnel while others with a very high standard of living are experimenting with the concept of using non-physicians to provide primary health service, like the "Nurse Practitioners' Scheme" introduced in some cities of Canada, or the scheme for using medical students in clinical capacity as in some hospitals of Latin America. A quite different,

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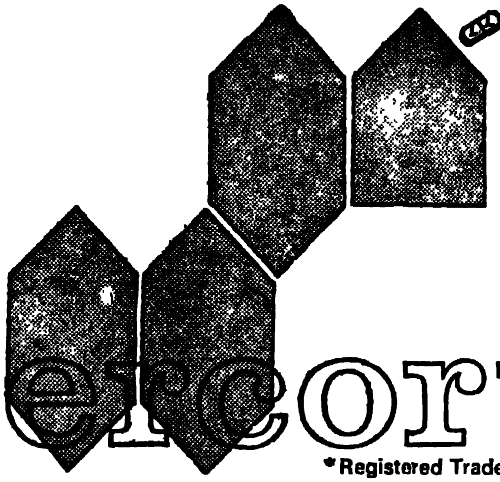
[†] Paper Selected for Dr. T. Thirugnanam Oration Award, 1977, by Tamil Nadu State Branch, IMA

[**] M.B.B.S., D.G.O., Pattukkottai, Tamil Nadu



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but reported to be highly successful, experiment is being carried out in China by using a large number of para-medical personnel popularly known as "Barefooted doctors" for the purposes of reaching elementary medical care and family planning services to the entire rural population. Other Asian countries are yet to decide whether they would follow in the foot-steps of the advanced countries of the West or evolve a structure of health services suited to both their actual needs and their overall resources.

BASIC DIFFICULTIES FACED IN INDIA:

The question is often raised why our various health schemes have failed so far to make an adequate impact on the rural masses in India. The reasons are not far to seek and broadly they are as follows:

1. Poverty, ill-health, squalor, lack of minimum basic amenities of life, illiteracy, unemployment and exploitation which are the legacies of centuries of colonial rule coupled with a steady rise in population as a result of 25 million births per year, have made promotion of health care a formidable task in our country as it has been the case in most of our Asian neighbours.

2. The type of medical education that is being imparted is also to blame. It is unfortunate that even after three decades of Independence we seem to be more, and not less, dependent on Western models. Western-style curative medicine still operates from large city-based hospitals. It is well known that sophisticated hospital-based programmes consume a disproportionate share of the health budget leaving very little resources for the rural areas where the great killers are still the malnutrition, waterborne and allied diseases. It is clear that hospital-based curative medicine alone can not cope with problems of such dimension and that a preventive approach with a strong public health bias is essential for meeting the challenge.

3. In the field of health, it is pity that so little provision had been made in the earlier Plans—only 2.7 per cent of the total outlay. There is no hope for an increase in the provision in the current Plan. The Indian Medical Association has been suggesting to the Government to raise the outlay on Health to at least 10 per cent if not 15 per cent in order to effectively cope with the dual problems of health and medical care.

4. Till today the country has no confirmed national health policy. Quite a number of high-powered committees has been set up periodically to go in to this problem, only to be superseded by fresh ones.

The suggestions made by these committees are lost for ever in a mess of paper work due mostly to interferences and interruptions by politicians who are least acquainted with the actual problems of rural health care.

OBJECTIVES OF RURAL HEALTH CARE:

The chief objecives of an ideal rural health care programme should be: 1. Comprehensive care. 2. Continuous care. 3. Co-operative efforts. 4. Community-based approach. 5. Equality of service. 6. Easy accessibility and availability and 7. Strengthening of the rural infra-structure.

Comprehensive care—It should incorporate on the one hand, preventive measures like the provision of clean drinking water and nutritious food for the rural people, maternity and child welfare services, family welfare advice and immunisation procedures, and on the other proper diagnostic and curative facilities through properly trained medical and para-medical personnel and well equipped hospitals. The medical care should be made comprehensive by a good referral system and liaison with a hospital.

Continuous care—The services should be continuous on a permanent basis and not on the concept of mobility, sporadic visits, camps or drives.

Co-operative efforts—The project should reflect co-operative efforts in that it is a programme organised by the community itself in which doctors and their auxiliaries provide technical help. The concept of harnessing the co-operation of the rural people is very important.

Community-based approach—The fact that a considerable amount of medical and health care can be rendered through para-medical workers drawn from the community itself with the medical officer as the leader of the team is a valuable lesson. The need, therefore, is to select a team of dedicated and sincere medical auxiliaries from the community itself.

Equality of services—The discrimination in medical aid as available to the urban people and that catered to their rural counterparts should be abolished. It may be recalled that during its meeting at Tokyo, The World Medical Association emphasised that rural people should be treated on the same footing as their urban counterparts in the matter of average medical care. The Indian Medical Association endorsed this stand and for this reason it has opposed the enlistment of 'quacks' or unqualified persons practising medicine in any capacity other than that of a trained para-medical assistant in the national health service.

Availability and accessibility—It is a myth that rural people do not prefer modern medical systems. It is because of the nonavailability and inaccessibility, or in other words the prohibitive cost of modern medicines that they turn to the other cheaper and more readily available indigenous medicines. Moreover the middle-aged poor worker is so concerned with the earning of his daily bread that he has neither time to rest as a patient or the money to spend on costly therapy. When the community receives proper health education, is aware of the availability of medical care and is motivated to accept the services, the demand will naturally increase and cover a large number of prophylatic and immunisation procedures and also early diagnosis of common ailments such as parasitic infections, malnutrition and diseases like tuberculosis and leprosy.

Strengthening of rural infra-structure—The rural health care concept should stress the importance of strengthening the rural infra-structure throughout the country. The infra-structure, if stengthened, will be able to undertake day-to-day activities in the field of curative or preventive medicine under the direction of higher policy-making bodies with allowance, of course, for a varying degree of autonomy at the local level.

PLANNING OF RURAL HEALTH CARE:

There is a wide area of agreement among the medical personnel, politicians and the lay public on the necessity of rural health care. The controversy is about the efficacy of the health plans or the national health policy so far pursued. A review of the programme for rural health care since Independence will help us to understand where the snags lie.

Development of PHCs and subcentres—Under the Community Development Programme, which began in 1952, Dr.

Raj Kumari Amrit Kaur, the first Health Minister of Independent India, designed an integrated rural health programme under which 5372 Primary Health Centres were formed with subcentres 4 times of this number, so that one PHC supported by 4 subcentres were set up in each C. D. Block covering about 60,000 to 80,000 people. Each centre was manned by two graduate doctors, one for duty at the centre and the other for peripheral services through the subcentres, who were to be assisted by a lady health visitor and a sanitary inspector. The subcentres were to be manned each by a compounder and a fully trained midwife. The programme derived its origin from the Bhore Committee Report, which envisaged that after the first phase was completed, a second and a more intensive phase would begin when each of the 4 subcentres in the Block were to be upgraded to a PHC supported by a new set of 4 subcentres attached to each of the newly constructed PHC. The original PHC at the Block would then be converted into a secondaryreferral centre equipped with specialists more or less on the model of district headquarters hospital. The keenness shown by the rural people throughout the country was a guarantee that they would contribute equally generously to the cost of lands and buildings for the second phase of the programme of expansion. All that the people expected from the Government was staff, equipment and medicines.

Scheme not carried out in full—Had this scheme, which began in 1952 and virtually ended in 1966, been carried out to its logical conclusion, it would have ensured a reasonably adequate coverage of public health care for the rural people, assuring the services of at least one trained doctor for every 10,000 rural population as against one doctor for every 2,500 urban population. There is no use, however apportioning the blame for non-implementation of this health scheme and failure to achieve the targets since that discussion would lead to political analysis of the policies and programmes of the previous Union Governments.

An alternative approach—From an objective re-appraisal of the existing rural health structure with the PHC complex as the pivot this author ventures to suggest that the PHCs should be made use of to cater for every 25,000—30,000 rural population. These centres should be manned by three graduate doctors out of which one should be a lady doctor. The existing PHCs at the Block level could then be converted into a fully equipped hospital with increased bed strength which should be able to tackle all kinds of medical, surgical and obstetrical emergencies. These hospitals should be preferably manned by doctors with postgraduate qualifications or doctors with more than five years' experience. Since 40 per cent of the population is below 14 years of age, it is essential that each Block hospital should be served by a paediatrician. These hospitals should be provided with all the facilities available at the district headquarters level such as facilities for carrying out biochemical and clinical investigations and provision for carrying out community research surveys, which should form an integral part of rural health care. From such hospitals, it will be possible to carryout periodic mass campaigns such as antituberculosis, antileprosy drvies, etc., nutrition surveys and various immunisation procedures from time to time. The proposal for making a medical college responsible for a particular segment of rural population and inter-linking of entire health complex based on PHCs should also be implemented without delay to instil a confidence of rural population in this rural health programme.

Peripheral health centres or community/mini hospitals—These PHCs should be strengthened by a network of peripheral health centres in the form of community hospitals or mini-hospitals to be scattered all over the countryside. Each such hospital could have 20 to 25 bed strength and be fully equipped and staffed to carry out routine preventive and curative medical care. Such hospitals could be operated by the Government agencies wherever possible or by the voluntary agencies with contributions raised from the community itself. An excellent example of the latter type is the chain of 8 rural mini health centres, covering an entire Panchayat Block and 2 urban centres in slum areas, run by the Voluntary Health Services in Madras under the "Mini Health Centre Programme". The Government can also give incentives and other encourmentage to doctors to form small groups to run these hospitals on co-operative basis. Local health councils could be organised with representatives of the local people to help in the management of these hospitals. The nationalised banks, LIC, and Government itself can sanction sufficient finances as outright grants and give interest-free long-term loans. The liaison with a referral hospital within a reasonable distance, say 12-15 miles, is extremely important.

FACTORS FOR EFFECTIVE RURAL HEALTH CARE:

A rural health care scheme cannot be made effective without taking the following factors into consideration:

1. *Provision of basic amenities of life for the rural population*—As has been mentioned earlier, most of the diseases in rural areas are due to insanitary conditions, lack of health education and ignorance. By providing clean drinking water, good sanitary conditions along with health education regarding personal cleanliness and hygiene, nutrition and dietetics based on food materials available locally, the standard of health in a rural area can be uplifted to a great extent.

2. *Training of medical personnel*—The Srivastava Committee has suggested an expeditious review of the existing medicare system in the country for evolving a strategy more suitable to Indian conditions, limitations and potentialities. Unfortunately as we are not clear about our own health problems, much less about the ideal organisation to deal with them, there is little surprise that our medical education still fulfils the requirements of the UK as in the beginning of the century rather than our own requirements in 1977. The whole problem should be tackled at the education level beginning with the selection of students. Students with a rural background should be selected and given encouragement to go and settle down in the rural areas. They should not only be taught the various aspects of promotive and preventive medicine but should also be persuaded to go to the peripheral areas to know the rural environment. As a remedial measure provision of compulsory in-service training for medical students in the final year of their study, as also rural internship for postgraduates is suggested.

Our prime need is of the basic doctor for community medicine rather than specialists. Specialisation must not be allowed to pre-empt other priority needs. The early years of training of our medical students must lay emphasis on community care rather than hospital care in order to inculcate the right attitude among them.

3. *Training of para-medical personnel*—In this context, as envisaged by the Srivastava Committee report, the great need of the hour is for auxiliary health personnel or para-medical workers to tap the fullest potential of tne infra-structure for health already laid in the country. There can be no two opinions about the fact that every doctor will require the help of at least a dozen, if not more, para-medical workers. This cadre of medical and health assistants would serve as a link between the field-level workers in the community and the doctors in the PHCs. Proper attention must be given to the selection and training of these para-medical auxiliaries. They would be involving themselves effectively in preventive and promotive health activities, family planning, maternity and child welfare programmes, immunisation procedures, field survey and collection of statistical data, besides performing simple curative functions wherever possible and necessary.

4. *Expenditure and outlay*—As has been mentioned earlier, the total outlay of 2.7 percent for Health is too inadequate and should be increased to at least 10 per cent of the total outlay. The outlay for each PHC was Rs. 3,000/- and this amount has been increased to Rs. 12,000/- per annum for the past 2 years. Unless this amount is doubled at least, no health care of any importance can be rendered to the rural folk. It may be pointed out for the sake of rendering improved rural health care that the system of giving free medical care to all has to be changed. When most of the affluent Western countries find it impossible to run charitable hospitals, how can one expect a poor country like ours to do so? Let people pay according to their capacity; service "free of charge" will be given to those who cannot afford. Levy of a health cess could also be thought of.

CONCLUSION:

Rural health care programme, to sum up, could be made effective in India by the creating of a private sector of comunity health, financed and run by the community itself with a strong, independent medical profession and a public sector, for which the Government is responsible, taking care of hospital services, medical colleges and research institutions. The existing public institutions, from the large teaching hospitals down to the Block PHCs in rural areas and corporation or municipal dispensaries in urban areas should all be upgraded and should be thrown open to the referrals from the community-run Mini-Health Centres. Indeed, the entire activities, treatment facilities, teaching and research in the public sector institutions must have a scientific linking with the medical problems of that area, i.e., the private sector of community health. The mutual trust, understanding and co-operation needed for such close ties between the two sectors must be readily forthcoming in a self-governing democracy working on the concept of a welfare State.

In conclusion, let us remind the makers of the nation's health policies that preventive care in rural areas and slums, which could effectively reduce the country's morbidity and mortality figures, should gain precedence in budget allotments over sophisticated urban hospitals.

3

Rural Health Scheme

P. K. GUHA*

The Prime Minister, Chief Minister of States, as well as the leaders of all political parties appear to us to be really anxious to implement a socialistic programme for the people. If so, there is no longer any plea for maintaining a double standard in planning for establishment of hospitals and Primary Health Centres (PHCs), including family welfare and maternity clinics, in the urban and rural areas of our country, more so because at least 75 per cent of the people live in the rural areas and about 90 per cent of them are poor. The public health and medical relief measures available now in the rural areas cannot, by any means, be expected to prevent and cure diseases unless the pattern of planning for rural health for the next three Five-Year-Plan period is radically changed. Even the schemes of travelling hospitals and of pushing out raw young medical graduates to the so-called rural health centres will not be able to solve the fringe of this vast problem in the countryside. It must be realised by all concerned that, under the existing circumstances, it is not practicable for the qualified doctors to cater to the actual need of the neglected and poor people of the rural areas and hence the plea that qualified doctors refuse to serve at the rural health centres is not tenable. It would also be grossly unfair to think of opening 3-year medical schools or to appoint so called unqualified doctors for the poorer rural people, whose lives are certainly not cheaper than those of their urban counterparts.

It is, therefore, the sacred duty of the Government to expand the PHCs in each rural Block to at least 50-bed hospitals with x-ray and laboratory facilities and with requisite medical and ancillary staff for rendering medical aid and undertaking effective public health measures. This scheme should be implemented by the end of three Five-Year Plans with provision for further expansion during the next 15 years. At least six full-time qualified doctors must be attached to each upgraded PHC on adequate pay and substantial rural and other allowances after imparting them sound training in teaching hospitals for at least two to three years. A well furnished guest house with accommodation for consultant-specliaists, their own fully trained assistants and a few medical students of the regional medical colleges should be constructed in addition to the staff quarters. All these quarters along with the hospital should be enclosed by a compound well with connecting *pucca* path-ways inside the PHC campus. Two ambulances, including on jeep-ambulance with two drivers and a mechanic-driver, should be provided at each such expanded PHC which must also be fully equipped with drugs and medical instruments and appliances on the standard of a medical college. Besides the required complement of nurses, pharmacists and other assistants, 6 part-time local social workers, cooks and class IV staff, one electric mistry and two durwans have to be appointed for such centres, so that they together may satisfactorily carry out the work at the busy outdoor and indoor departments in addition to the school health, family planning and other types of public health activities entrusted to a PHC.

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*M.B., M.R.C.S. (Eng.), D.O.M.S. (Lond.), F.S.M.F. (WB), Ex-Minister of State for Labour and Health, West Bengal; Ex-Hony. General Secretary, IMA (Hqrs.); Ex-President, IMA Bengal State Branch; Ex-Hony. Editor, Journal of the IMA and 'Your Health', Calcutta

To cater to the health need of 75,000 to 1,50,000 or more of rural people in each Block, a net-work of six to eight expanded subsidiary health centres (SHCs) with at least 10 beds and two qualified full-time doctors and one or two part-time local qualified doctors in each such centre would be necessary. Each SHC should be so planned that satisfactory dispensary, maternity and family welfare services can be rendered from the centre and home visits can be arranged in a systematic way for improving the standard of health and nutrition, particularly, of the poor children, ladies and the aged people. The Government, would, naturally, have to distribute nutritious food and necessary medicines to such persons under the guidance of the local Panchayet Committees and with the assistance of part-time locally recruited social workers. If, such a rural health centre scheme can be adopted along with steps to establish small-scale industries and joint co-operative agricultural societies with provision for grant of Government subsidies, the ideas of the Government for improvement of rural health can be realised to some extent within fifteen years. Government should provide for one hospital bed for every 500 persons in rural and urban areas within the next twenty-five to fifty years.

The author thinks from his personal knowledge of the problem of rural health and health administration in West Bengal that this State has the requisite infra-structure for introducing this scheme. If, however, the State Government approves this rural health scheme, it would be essential to decentralise health administration so that the district hospitals may be fully equipped and their status raised to that of a first class medical college hospital with 500 beds and comprehensive drug and equipment store for the whole district. Its staffing pattern will also have to be modernised with additional specialists with fully qualified and trained assistants to visit the rural health centres regularly for a week or so every month as per requirement. A Deputy Director and two Assistant Directors of Health Services should be posted in each district with powers of the Director of Health Services, and the Health Secretariat should be abolished to avoid delay in implementation of their urgent welfare schemes. The Government should provide for an adequate number of staff cars and station wagons for the use of the specialists and their team of asistants from the district as well as from the regional medical college. The present system of allotting one motor vehicle to one Government officer should be abolished or at least minimised.

After steps are taken to establish two more medical colleges during the next Five-Year Plan, one at Kalyani and another in a rural area of Midnapore or elsewhere, all the nine medical colleges in West Bengal should be treated as regional medical colleges and at least 80 per cent of the seats in all medical colleges situated outside Calcutta must be kept reserved for the best eligible students of the specified regions consisting of one or two neighbouring districts and preference should be given to the eligible meritorious students residing and studying in rural areas.

For improving the efficiency of the decentralised health administration, separate autonomous technical and administrative boards should be appointed by the State Government to take charge of teaching or research medical institutions and also the district health administration and these boards consisting chiefly of senior technical and other qualified persons should have powers to buy medicines and appliances and appoint part-time consultants and medical and other personnel to fill up vacancies in addition to powers to appoint, transfer, suspend and dismiss all non-gazetted staff within their jurisdiction. To implement such a scheme in a poor developing country, it would be wiser to approach the WHO, the UNICEF, and their agencies for financial aid, unless such assistance had already been offered.

As a very large number of public health assistants and social workers would be needed to work under the guidance of the qualified doctors, the local unqualified practitioners and unemployed and under-employed persons may be trained and appointed, mostly on part-time basis and on reasonable allowances with provident fund and gratuity facilities, so that the unemployment problem can be solved to a great extent. Persons working in rural areas should not be asked to retire before completion of 65 years. Doctors and other persons re-appointed after retirement should also be requested to serve in the rural areas, as far as practicable, in PHCs or SHCs chosen by them.

4

Outlines of a Community Oriented Medical College and Hospital

KULDIP SINGH*

The new medical colleges opened in our country after Independence have copied the pattern of the old medical colleges established during the British era. Thus the pattern, adopted over a hundred years ago, has virtually remained unchanged. The colleges and their attached hospitals were designed to provide medical and health care for the large urban areas and also to provide doctors for the army. Even in the UK the realisation has come that the medical care in such hospitals, whose standard is much better than that in the peripheral hospitals, is available only to a minority of the population. Moreover, there is no feed-back mechanism to link the periphery to these central institutions and so they remain cut off from the changing needs of the community. In many ways the doctors and para-medical staff trained in these institutions fail to meet the requirements of the majority of the population that they are expected to serve. To obviate these defects more and more peripheral hospitals are being attached to these central hospitals in the UK with regular rotation of staff. Even the municipal and country health services in the UK have now been integrated with the hospitals and a single area medical authority is now responsible for the total health needs of a well defined segment of population.

The aim of all these changes in the UK is to provide the same standard of health care to every one irrespective of their place of residence. It is reported from various sources that the same has been achieved in China in their own way.

The doctors coming out of our medical colleges have found

Department of Surgery, Postgraduate Institute of Medical Education and Research, Chandigarh

*M.S. (Pb.), F.R.C.S. (Edin.), D.M.R.T. (Lond.), F.R.C.S. (Eng.), M.A.M.S. (India), Associate Professor and Head of General Surgical Unit, II

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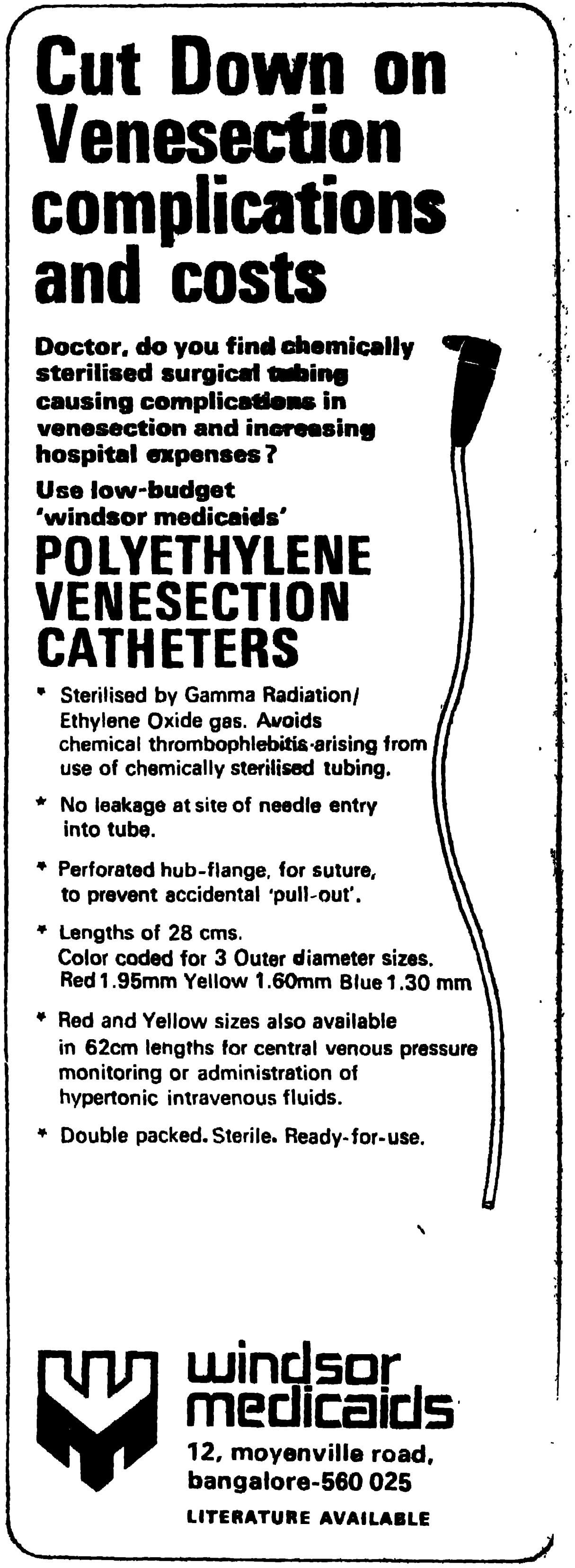

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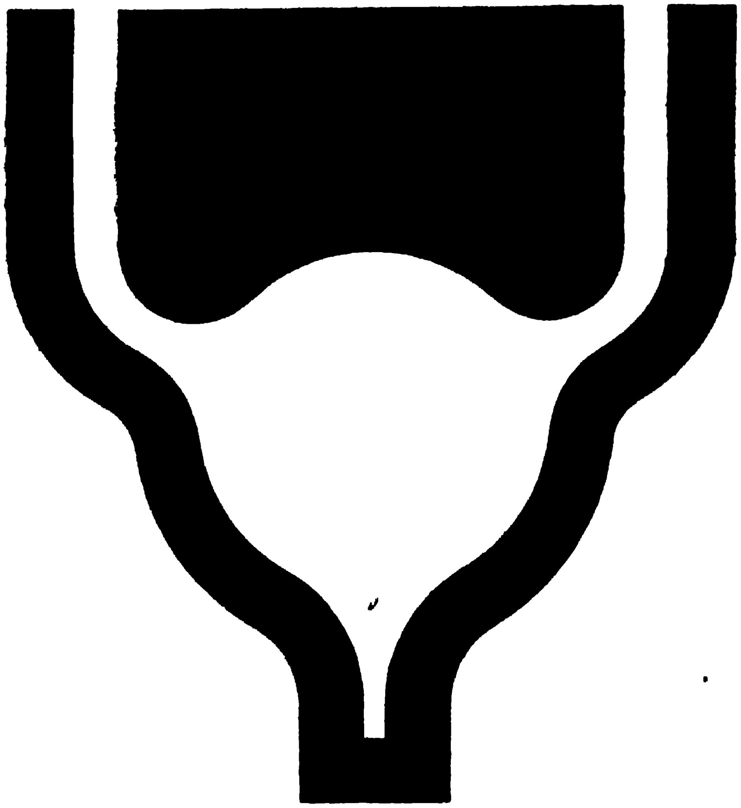

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favours in all countries of the West because their training has been on the same pattern suitable for catering to the needs of a developed society. Our doctors going abroad find it easier to work for the Western community and find themselves lost when called upon to face the needs of the Indian community. This is one of the main reasons why self-educated medical practitioners, homoeopaths and ayurveds (all of whom incidently use modern drugs primarily) are found acceptable to our community even in large towns. No amount of monetary incentive will make our doctors work in the villages because they are incapable of orientating their knowledge to the local needs for which they have not been trained. The growing competition for postgraduate medical degrees is also to enable the doctors to work in large institutions.

A number of committees of the Government of India have been seized of this problem of providing some medical care to the 75 to 80 per cent of our population residing in the villages. The Sirivastava Committee had suggested attaching of 2 rural Blocks with each medical college. In spite of several directives and meetings on this issue nothing tangible has come up. It appears to be extremely difficult to change the well established traditions of the old medical colleges. In most of the medical colleges the doctors are allowed private practice and this factor alone prevents any serious effort on the part of the senior doctors to involve themselves in any community based programme.

One of the ways by which a worthwhile attempt can be made to cater to the needs of our community is by making the newly medical colleges opened during the last 5 years get together and set up new traditions of training doctors and para-medical staff. Each such institution has to become responsible for the total health needs of a population group with the ultimate aim of holding responsibility for two districts. The detailed planning of each institution requires an on-the-spot study. The basic features of such an institution may be outlined as follows:

HOSPITAL:

(a) Instead of a large hospital of 500 to 1000 beds, the central hospital would be of 200 beds only; 100 beds could be centrally air conditioned and out of them 20 could be allotted for paying patients and 80 for seriously ill general patients. The remaining 100 beds could again be divided in the following ratio: 20 paying beds and 80 free beds for patients requiring specialised treatment at the central hospital.

(b) There would be 5 to 6 peripheral hospitals having 50 to 70 beds each. Each pripheral hospital would have its own laboratory, x-ray facilities, labour room and operation theatre.

(c) Each peripheral hospital would be attached to a number of rural subcentres or clinics and have its own transport facilities.

(d) Patients transferred to the central hospital for specialised care and treatment would return to the peripheral hospitals as soon as they are able to do so. They would remain under treatment of the same team of doctors.

(e) Every consultant (assistant professor and above) along with his team of junior doctors would have attachment to one or two peripheral hospitals on a permanent basis.

(f) One of the 50-bed hospitals would be located in the town separately from the central hospital. All patients would be initially seen at their nearest clinic or peripheral or local hospital. Only complicated cases requiring intensive medical and surgical care and special investigations would be treated in the central hospital for the minimum period required.

(g) Medical students, interns and residents would be taught and trained by well planned rotation between subcentres or clinics, peripheral and central hospitals.

REST HOMES AND SARAIS:

A visit to any medical college hospital shows a cluster of *rehries*, *dhabas*, etc., surrounding it. These shelters generally look after the needs of a large number of patients and the visiting relatives of patients admitted or waiting for admission. Hundreds of such patients sleep on the roadside under trees or in corridors and garages of the hospital or any nearby building. This is one of the reasons why poor patients and patients from remote villages come to the hospital as a last resort. They feel neglected when they are not admitted to the hospital on the day of their arrival. In spite of all explanations by the doctors, who are helpless to admit them, these people carry the impression that the hospitals are not meant for them. Many of them return to their homes as they do not like to spend days and nights in the town without any shelter. A visit to the wards of any big hospital on any day gives one an impression that about half of those. who have been admitted, could have easily been treated as outpatients. Patients coming from remote places have to be admitted for days and weeks for investigations and are discharged only when they are fit to travel long distances. The utility of the large hospitals can be easily doubled if large *sarais*, rest homes and recovery homes are built around each hospital. For a new hospital, large *sarais* and rest homes may be quickly built opposite the future central and peripheral hospitals. The hospitals can be started in these buildings and shifted over as soon as the proper hospital building is ready in a year or two. The ultimate aim would be to provide roofed accommodation to every one needing hospital services. All patients and their relatives would be provided shelter at all times of day and night in these *sarais*. Emergency departments of these hospitals would not only provide urgent treatment to all emergency patients but would attend to one and all.

DEPARTMENT OF COMMUNITY MEDICINE AND PUBLIC HEALTH:

Once fully developed this department would be the biggest one in the college and hospital, utilising about 30 to 40 per cent of the financial support. This department would be responsible for the following:

(a) Teaching of hygiene, community medicine and public health to the medical students. (b) Training of multipurpose health workers. (c) Training of first level health assistants who could be primary school teachers, *patwaris*, and village postmaster. (d) Sanitation and public health of the whole areas. (e) Smallpox, malaria, tuberculosis control and control of other preventable and infectious diseases. (f) Maternity and child welfare and immunisation programmes. (g) School health service. (h) Sports medicine. (i) Registration of births and deaths. (j) Health education in educational institutions and factories. (k) Health surveys for finding out pattern of diseases and public health needs. (l) Preparation of a blueprint for converting the whole areas into a "habitat" area for integrated development.

Presided over by a Professor of community medicine, the department would be assisted actively by departments of obstetrics and gynaecology, paediatrics, ophthalmology and psychiatry. The department would have its own band of social welfare officers to project and look after the needs of the community.

COLLEGE:

The salient features of such a community-oriented college would be as follows:

(a) It would be a purely residential college.

(b) The pre-clinical departments of the college and hostels would be in the same campus as the central hospital.

(c) During the first month in the medical college, all students would be taught community medicine to make them fit as health assistants and to assist the work of multipurpose health workers. During the first year all students would be posted to peripheral clinics and hospitals to stay and learn and work there for one week in every month. Thus they will learn about the health problems which they will be responsible for solving later on.

(d) During the last 18 months of the clinical teaching for the M.B.B.S. degree, the students would stay in hostels attached to peripheral hospitals for 9 months. This is being followed in Sweden. Medical students there have to work in peripheral hospitals as their regular teaching programme.

(e) Clinical teaching would be decentralised to a great extent, e.g., one consultant would be responsible for teaching most of his or her subject to the group of students attached to his or her unit.

(f) Interns and resident doctors would be given rotatory work in the main and peripheral hospitals in a planned manner.

PROVISION OF HOUSING FOR THE STAFF:

Institutional housing would be provided to all members of staff. The houses would roughly correspond to type 7 to 14 of Chandigarh Government houses. No palatial house would be built.

DOCTORS' EMOLUMENTS:

Doctors may be given salaries admissible to CHS doctors. Private practice would not be allowed.

SPECIALIST CARE:

It would be the ultimate aim of the institution to develop all specialities. Initially the institution would undertake to refer patients to specialised hospitals like P.G.I. for such of the services which are not available. Such patients would be received back and cared for locally for later management.

EXPENDITURES AND FUNDS:

The expenditure on peripheral clinics, health workers, peripheral hospitals and the department of community medicine may not be included in the total expenditure on this institution when comparing its annual liability with the already established colleges.

The establishment of an institution on these lines would attract the attention of Government of India and WHO and they should be able to get funds for this multipurpose community medical college. Once it starts looking after the whole community in the manner outlined, the local population would come forward to provide financial support to their own institutions to extend the field of its working.

It is apparent to everyone that although we have made tremendous progress since Independence we have not been able to uplift the lot of our village population. I am sure an integrated health care programme which would ensure the same level of medical care to the remotest village, as is available to the city dwellers, can and should be provided.

CORRESPONDENCE

The Editor is not responsible for the views expressed by correspondents

Medical Care for the Villages

SIR, —In the article with the above caption published in your esteemed Journal (69: 236, 1977) Dr. J. C. Sarin placed a few pragmatic suggestions before the medical profession in particular and the authorities in general for looking into the rural medical care needs of the country. Perceptibly or imperceptibly, this issue concerns the system and the whole gamut of medical education. While sharing Dr. Sarin's views on the Community Health Workers' Scheme of the Union Ministry of Health, overflooding of the towns and cities with M.B.B.S. doctors, unemployment among doctors, paucity of qualified doctors in villages, need of the country for doctors with rural orientation and a new course to be adopted for the medical training of such personnel, etc., however I would like to make a little departure from the suggestions he has put forward as remedies.

I agree with Dr. Sarin that the dignity of M.B.B.S. course must be maintained and that there should be one kind of medical course. Regarding the other kind of medical course, however, my suggestion is that the candidates who competed for but failed to get admission in the M.B.B.S. course, may be declared eligible for this course of 3 or 3½ years. After qualifying for this course, the doctor has to serve at a centre covering five or six villages for a period of two years compulsorily. This course may be styled as 'Rural Area Doctors Course' or better as 'Hospital Assistant's Course' (H.A. Course). By the time a candidate completes the course, he is expected to get familiar with the routine, salient features of practice in medicine, surgery, midwifery and gynaecology and also with the routine work of ophthalmology. Being basically trained entrants to the medical field, such candidates will give a better account of themselves than the Community Health Workers recruited by the Government. These two cadres can also work together or independently as the Government may propose for the common good.

We achieve the following purposes by adopting this scheme:

(1) We may supply the needs of the country for rural medical care in a better way and 2) we may give a chance to the Inter-Science passed candidates for getting an entry into the medical field and becoming useful citizens for the country at large. A rough idea about the utilisation of this new cadre is given below which can be concretised after discussions and improved upon.

A group of five or six villages may be asked to bear the expenses of this new scheme. Government may be spared from defraying the expenses of this scheme or some other way may be found out to make the scheme self-supporting. The patients should be divided into three categories: 1) 1st class patients—to pay full scheduled charges, ii) 2nd class patients—to pay half the charges or cost price charges, iii) 3rd class patients—to be treated absolutely free. In this way the village people will get the benefits of modern medical care.

These young Hospital Assistants, after they have served for 2 years in this way in village medical centre, may be eligible for admission to the full course of M.B.B.S. degree and after studying for 2 years more they can qualify for the degree. This one step will help to solve so many problems such as unemployment amongst doctors, efficient medicare in villages and opening up of an avenue for those youngmen who failed to secure admission to M.B.B.S. course directly to study medicine. Those, who do not get qualified for M.B.B.S. after 2 years service in villages, will in majority of cases be tempted to settle in villages for practice because they have already become known in village circles and are not likely to crowd the cities. I hope the leaders of IMA and the Government will give due consideration to this new scheme in the interest of medical profession and the country as a whole.

I am, etc.,

Surendranagar,
Gujarat. M. B. DWIVEDI, M.B.B.S., D.O.

Medical Education and Rural Health

SIR,—A proper rural health service is still a far cry in our country. The quantum of the service available for the rural poor is practically negligible. There are several ostensible and latent reasons. The most glaring one, however, is the lack of qualified doctors for catering whatever dispensing and hospital facilities are available. It is undeniable that our doctors do not like to settle in the villages. But the reasons behind this reluctance involve not merely factors like lack of amenities of life, poor pay, etc., but also reflect an attitude of the social classes to which they belong. Doctors in our country have mostly urban bourgeois or petty bourgeois background. A relentless pursuit of Mammon or the god of wealth as against an ideology of service characterises these classes. This explains concentration of doctors in towns and cities. No monetary incentive offered by the Government or other agencies can match their earning in the urban areas where with a few honourable exceptions most of them engage in merciless squeeze of the population. This happens in any capitalist and pro-capitalist country. Due to the petty commercial mentality, which is bred in such societies, doctors resist any endeavour which does not contribute to further fattening of their income. They feel bored in villages as they cannot integrate themselves with the rural life based on agricultural production, which is the most dynamic process in the villages. The wives of these doctor feel still more bored.

The Left Front Government in West Bengal is seeking solution to the lack of qualified doctors in the rural areas by way of introducing the L.M.F. course. This is bound to fail for two reasons. The move is an imposition from above and not born out of movement by the people. Secondly, these L.M.F. doctors will also come from the same bourgeois background with the difference that they failed to make a grade in the educational rat-race. Before 1950 when L.M.F. doctors were in abundance, District Board dispensaries were as empty as Primary Health Centres of today.

A brief discussion of the Chinese example in providing rural health service to the people may help to clarify the thinking of our medical planners. Reference may be made to publication in *British Medical Journal* of the report of a team of British medical experts which visited China which throws light on the big strides made by China towards a human and rational rural health service. The team visited many communes and mentioned in particular a commune consisting of 23,000 people. There were 17 qualified doctors including specialists and doctors practising traditional medicine, a 30-bed hospital and arrangement for pathology, x-ray, surgical operations. There were 293 para-medical staff attached to this commune including nurses, field workers, compounder and bare-foot doctors. These bare-foot doctors were in fact peasants attached to the rural production process, but had been trained to handle emergencies, prescribed remedies for simple injuries and illness and apply the treatment prescribed by qualified doctors. They did all these without leaving productive work. These bare-foot doctors formed the base of China's rural health care pyramid. They did not replace the trained doctors, but were responsible for mobilising all the rural people for taking an active role in health care and sanitation.

Naturally within our social system there is no scope for working out such a realistic and satisfactory solution. But certain feasible steps can at least be taken for reforming the existing structure and using it as spring-board for future advance.

Let the doctors remain in the urban and semi-urban areas. Let them and few locally recruited doctors in the little market township be attached to urban and semi-urban hospitals which are capable of catering high grade professional service. These doctors will visit subsidiary rural centres for definite hours on fixed days. A team of 20 para-medical staff to cater for 2 *anchals* of 20,000 population, recruited locally from those who have passed higher secondary examination and trained for 2 years in district hospital, may be engaged to impart health education to the people and guide them in maintaining sanitation. They will be given training so that they are able to give first-aid, inoculate people against infectious diseases, cater medicines prescribed by doctors, conduct normal deliveries and take ante natal and post natal care, guide toddlers, report serious cases to doctors and do family planning work. Their services will be of real help to the poor rural people if they in their turn, are guided, helped and co-ordinated by the visiting doctors. They may be paid a primary teacher's salary and though having them will not be as good as having more highly trained personnel, they will be the best that we can provide for the village people right now in the present set-up, where neither M.B.B.S. degree holders nor L.M.F. degree holders will venture into the countryside.

I am, etc.,

Kadamtala, Jalpaiguri 735101, M. N. NANDY
West Bengal.

REVIEWS

Medi Melody—By Dr. S. J. Joglekar, 1978, Pramila Prakashan, Bombay, 21.8 cm. × 14.2 cm., pp. 47, Rs. 8.00.

The medical practitioners of the Western Country, at least a number of them do write extra medical literary matters which are published in the pages of medical journals of repute. Dr. Joglekar's book, though small as a book, is along the same line. The book contains 49 poems, most of which are written in a humorous tone. The subject matters, although mostly medical, goes to subjects like 'Man'. Even, when dealing with 'Man', the author comes out with the great finding that 'Man is the same everywhere and whereever he may be'. A poet who has this at the back of his mind has really achieved what he should.

JYOTIRMOY CHATTERJEE

Alternative Approaches to Meeting Basic Health Needs in Developing Countries: A Joint UNICEF/WHO Study, 1975, Edited by V. Djukanovic and E. P. Mach, WHO, Geneva, 23.8 cm. × 16.4 cm., pp. 116, S. Fr. 24.

A major portion of the population in developing countries does not have virtually any access to health facilities. The problem is no doubt one of availability of resources but it is being increasingly realised that equally important is the strategy of utilisation of resources. The conventional health services, modelled upon 'Western' patterns, are not suited to the needs of developing countries and alternative approaches have to be found. The present study by WHO and UNICEF endeavours to provide guidelines for their policies and those of developing countries for developing and strengthening basic health services through review of number of successful health programmes launched in various countries. The programmes which have been reviewed were selected on the basis of several documents available to WHO and UNICEF and were then studied at actual site by working teams of these agencies. The aim was to find new approaches by which basic health care can be improved and extended to a large population.

The countries where the case studies of programmes have been conducted are Bangladesh, China, Cuba, Tanzania, Venzuela, Yugoslavia, Niger, India and Nigeria. The programmes range from National ones to limited experiments and one is as much impressed by the role of political leadership as by initiative and dedication of individuals. Though diverse, there are many basic similarity in the programmes underlining the similarity of problems of developing countries. If the mass mobilisation in China for health programmes is amazing it is nevertheless component of all programmes described. Other features that stand out are use of auxiliary health staff including use of traditional health workers for primary health care, integration of indigenous and western systems of medicine, motivation of staff, integration of health into general development programmes, regionalisation of services, decentralisation of planning, etc. It was gratifying to read about comprehensive rural health project at Jamkhed in India. The chapter devoted to Ayurvedic system of medicine is also very informative.

In the light of the case studies carried out, recommendations have been made in the last part of the book as to how the obstacles to provision of health care in developing countries (described in the earlier pages) can be overcome. On a country wide basis, first requisite is a strong political will and formulation of clear national policies with health as integrated part of other development programmes. This may involve re-allocation of resources which have been maximally utilised in the urban areas so far. There has to be a system of identifying the populations needs and priorities. Next is the use of locally recruited primary health workers after a simple training (geared by functions expected of him). In view of the three tier structure recommended by Medical Education and support manpower committee in India for providing health care, note must be taken of an important recommendation that there should be re-orientation of all other levels of health system to provide support (referral, training, advisory, supervisory and logistic) to the primary health worker. The component of supervision and in-service training is very important, and there has to be detailed working out of functional linkages between various health personnel. The question of absorption of traditional health workers in the health service requires consideration (as envisaged in Rural Medical Practitioners scheme). An important point is made about imparting health education. Workers belonging to a community are more effective as they share the views, aspirations and language. The decision about health should be made by the community itself assisted by trained personnel.

The book with its realistic and rational approaches is recommended to all who have anything to do with provision of health care in developing countries.

V. K. GANDOTRA

Nutrition in Preventive Medicine—Edited by G. H. Beaton and J. M. Bengoa. 1976, WHO, Geneva, 24 cm. × 16 cm., pp. 590, S.Fr. 83 (WHO Monogr. Ser. No. 62).

This monograph is intended to fill up the gap between the informations available in textbooks and the recent knowledge on malnutrition and its control in the community. The first part of the book deals with "The major deficiency syndromes". This part is a lucid account of current informations of practical use. The second part, "Epidemiology", contains chapters on epidemiological principles in relation to nutritional disorders with particular emphasis on synergism of malnutrition and infectious disease. The third part, "Approaches to control", describes various concepts and means in evaluation and health programmes in the community. Nutritional aspects of disasters and planning of a national food and nutritional policy are also discussed. The annexes include nutrient function and requirements, nutritional problems of affluence, etc. These critical reviews will be of particular interest to those working on these subjects. The book will be very much useful for workers engaged in the enormous task of the control of nutritional problems in the developing world. It will also serve as a good teaching manual for students of nutrition, preventive medicine and related disciplines.

A. K. BHATTACHARYYA

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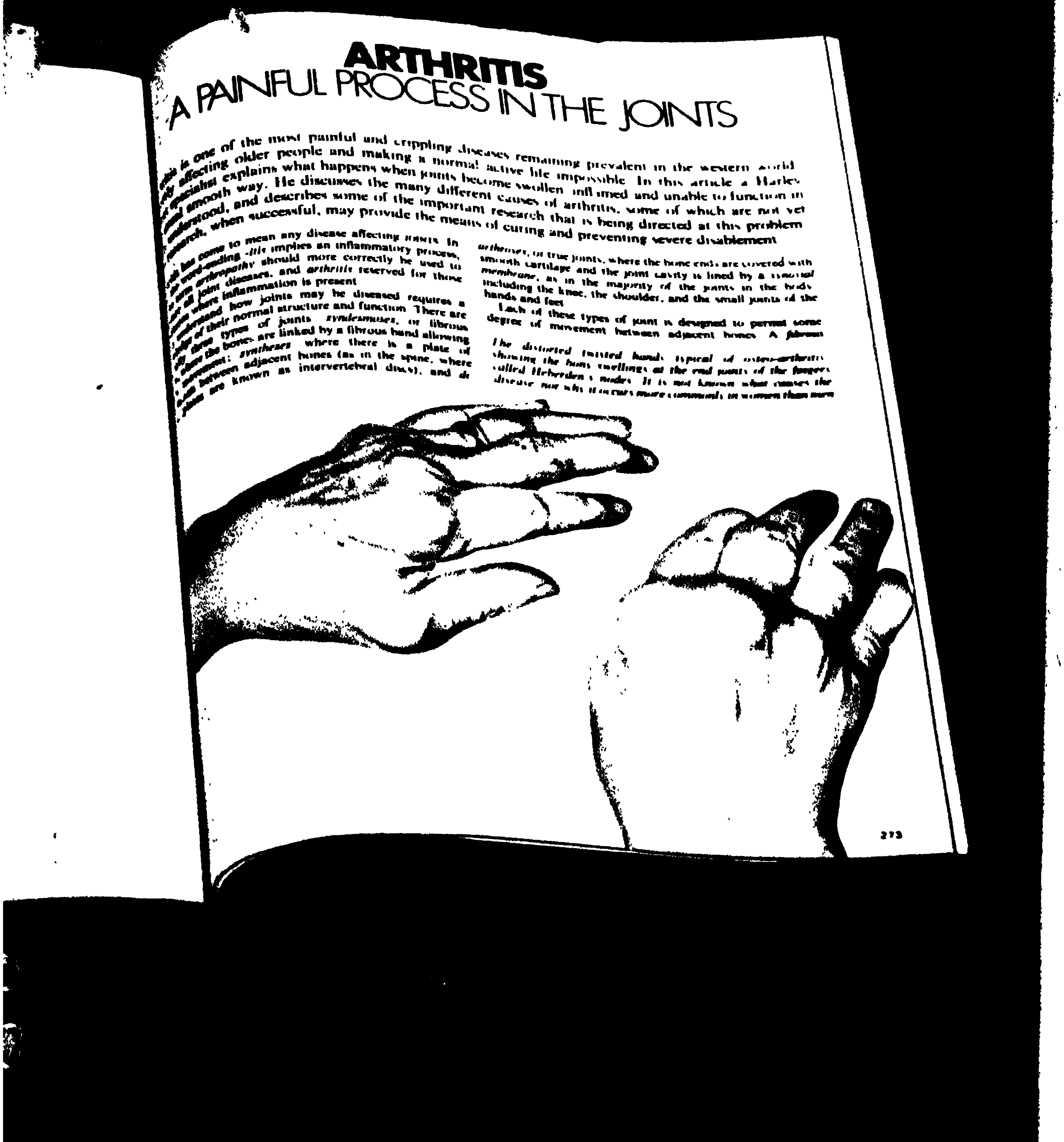

ARTHRITIS
A PAINFUL PROCESS IN THE JOINTS

itis is one of the most painful and crippling diseases remaining prevalent in the western world lly affecting older people and making a normal active life impossible. In this article a Harley specialist explains what happens when joints become swollen, inflamed and unable to function in smooth way. He discusses the many different causes of arthritis, some of which are not yet understood, and describes some of the important research that is being directed at this problem research, when successful, may provide the means of curing and preventing severe disablement.

has come to mean any disease affecting joints. In word-ending -itis implies an inflammatory process, arthropathy should more correctly be used to all joint diseases, and arthritis reserved for those where inflammation is present.

understand how joints may be diseased requires a of their normal structure and function. There are three types of joints: syndesmoses, or fibrous the bones are linked by a fibrous band allowing movement; [illegible] where there is a plate of between adjacent bones (as in the spine, where are known as intervertebral discs), and di-arthroses, or true joints, where the bone ends are covered with smooth cartilage and the joint cavity is lined by a synovial membrane, as in the majority of the joints in the body including the knee, the shoulder, and the small joints of the hands and feet.

Each of these types of joint is designed to permit some degree of movement between adjacent bones. A fibrous

The distorted twisted hands typical of osteo-arthritis showing the bony swellings at the end joints of the fingers called Heberden's nodes. It is not known what causes the disease nor why it occurs more commonly in women than men

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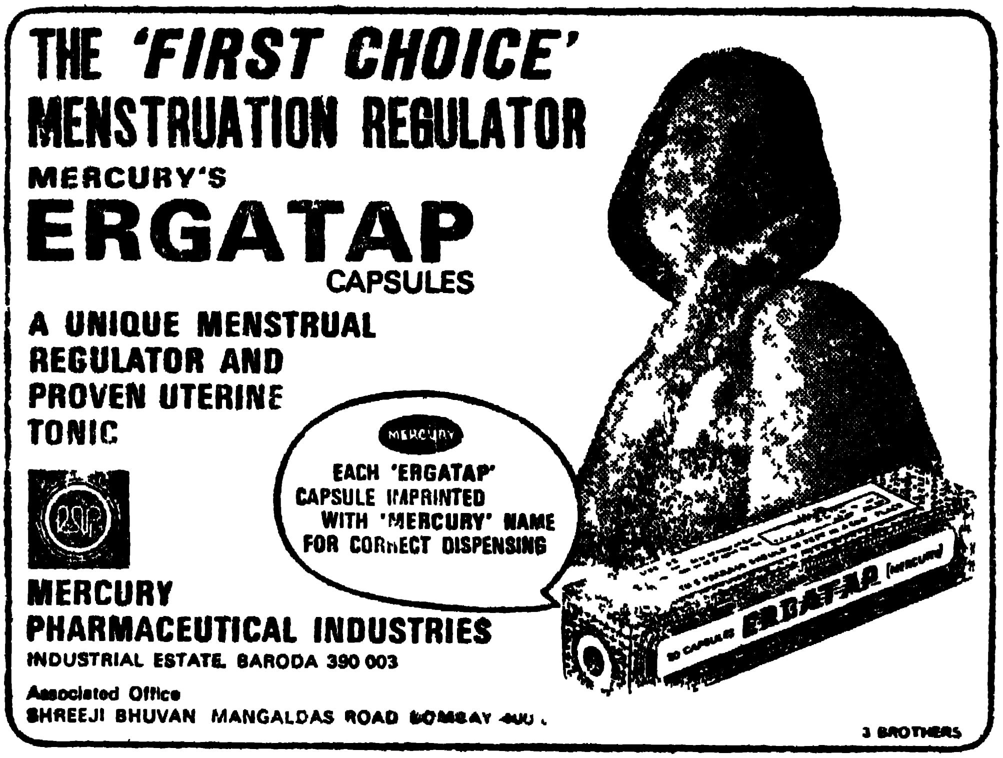

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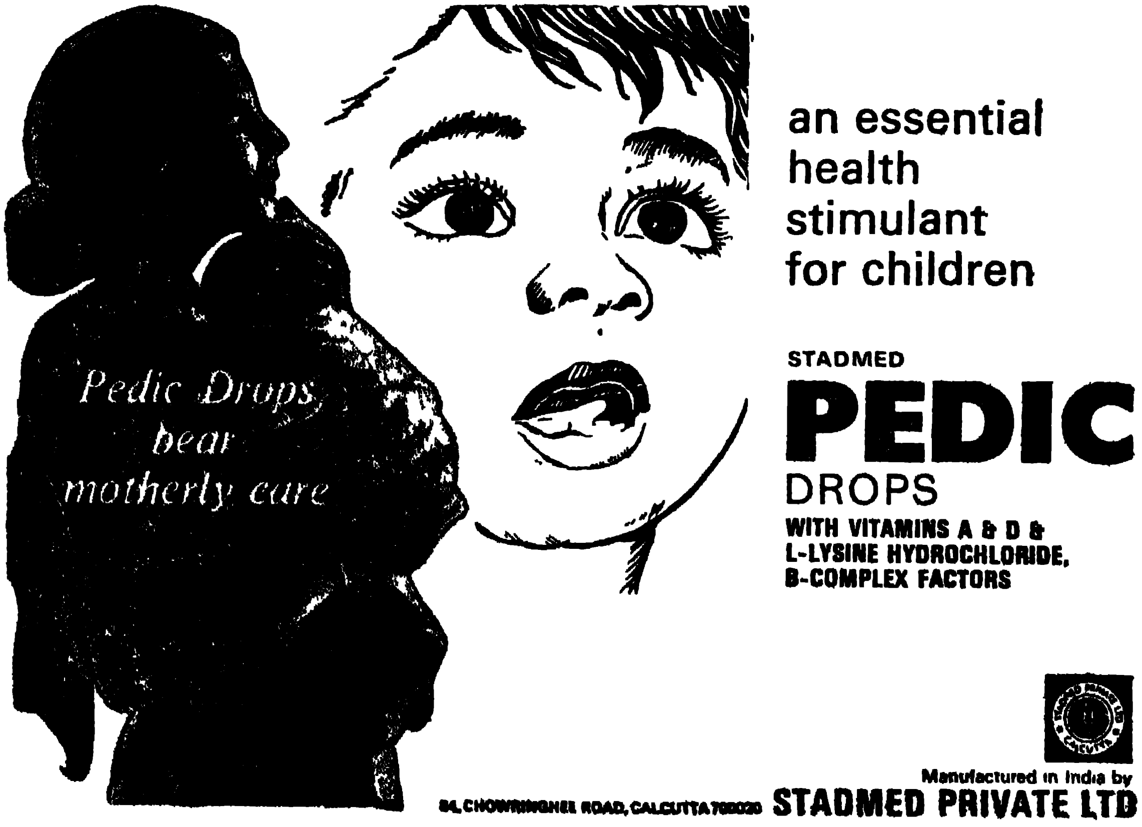

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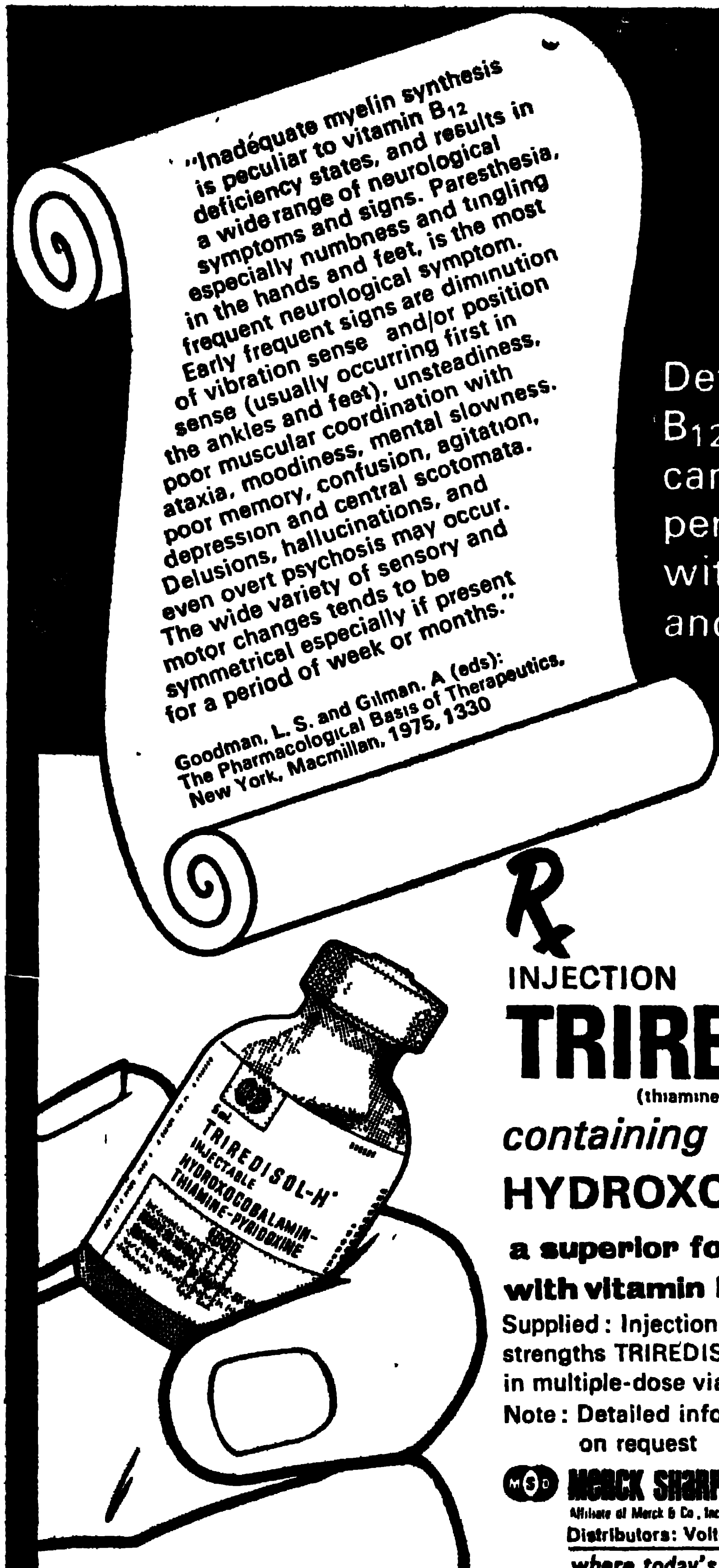

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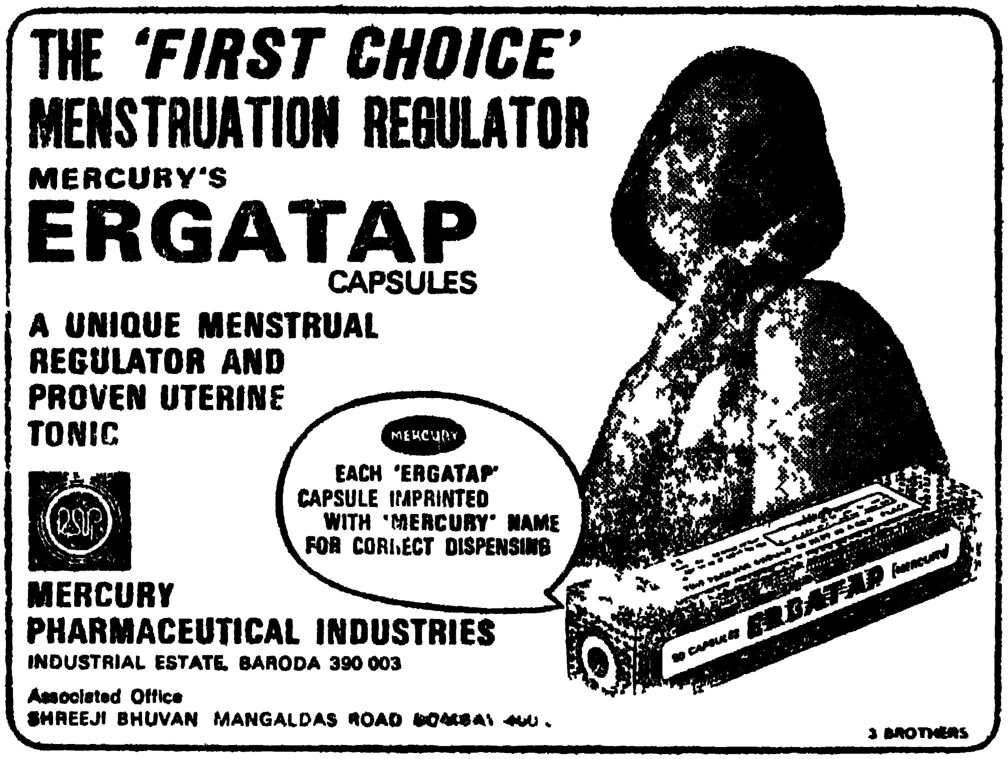

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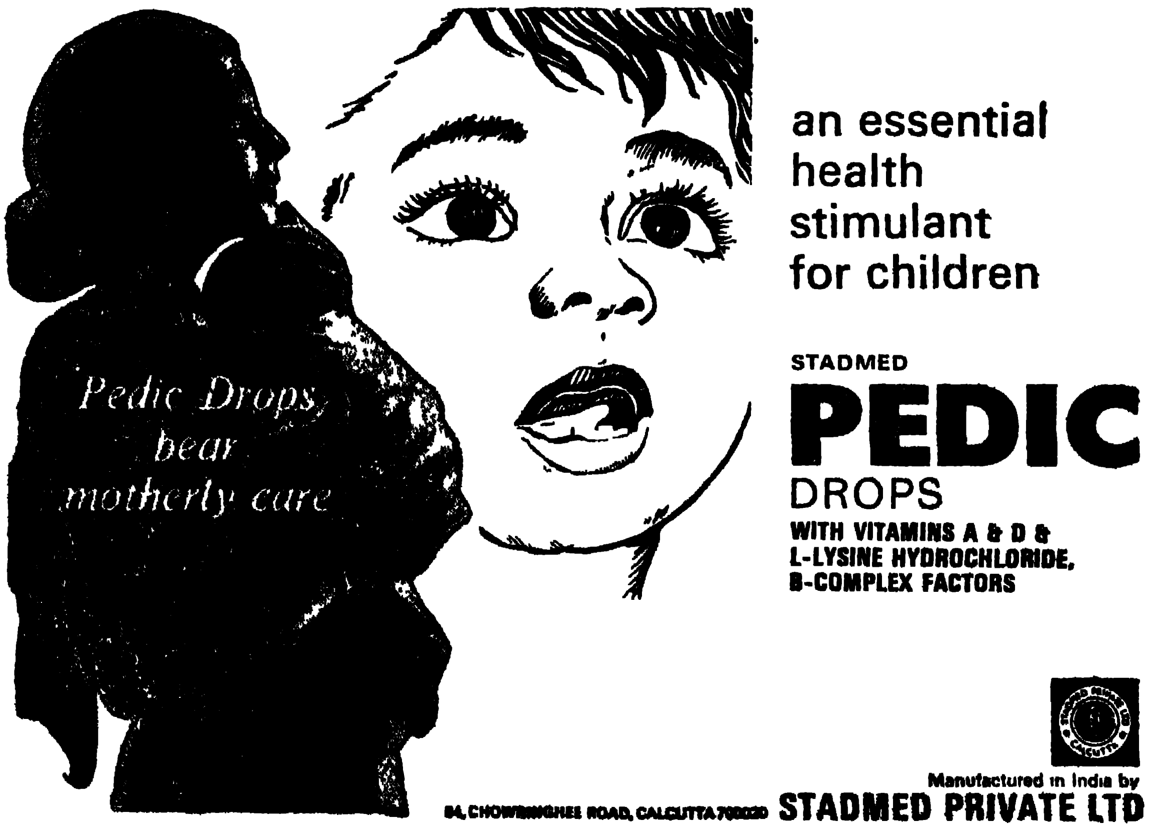
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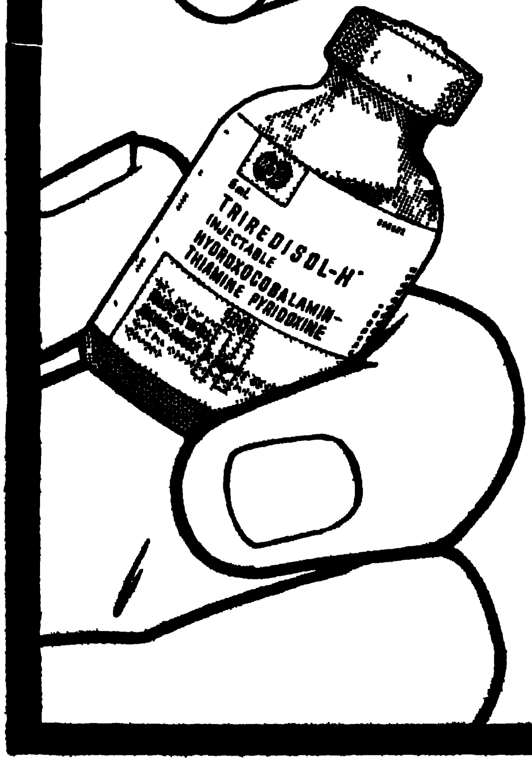

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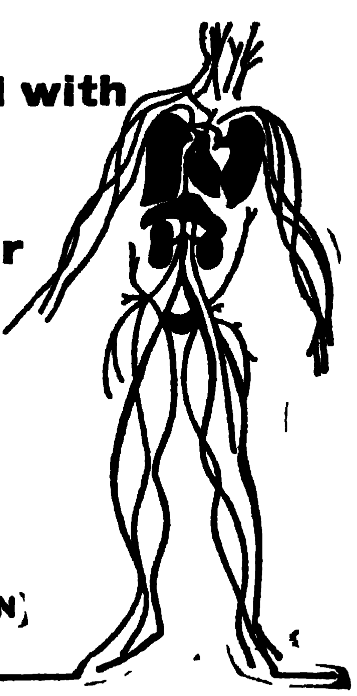

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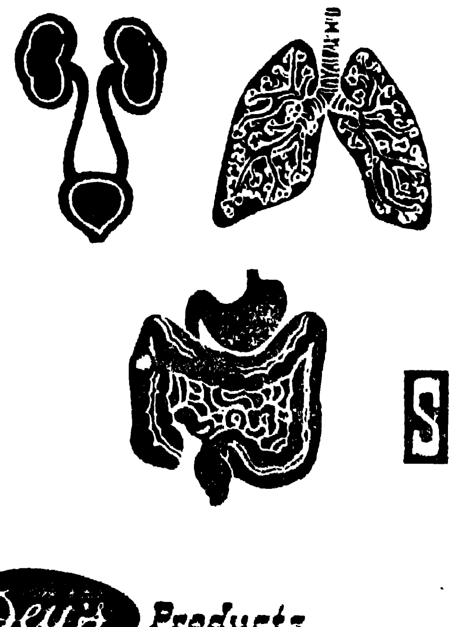

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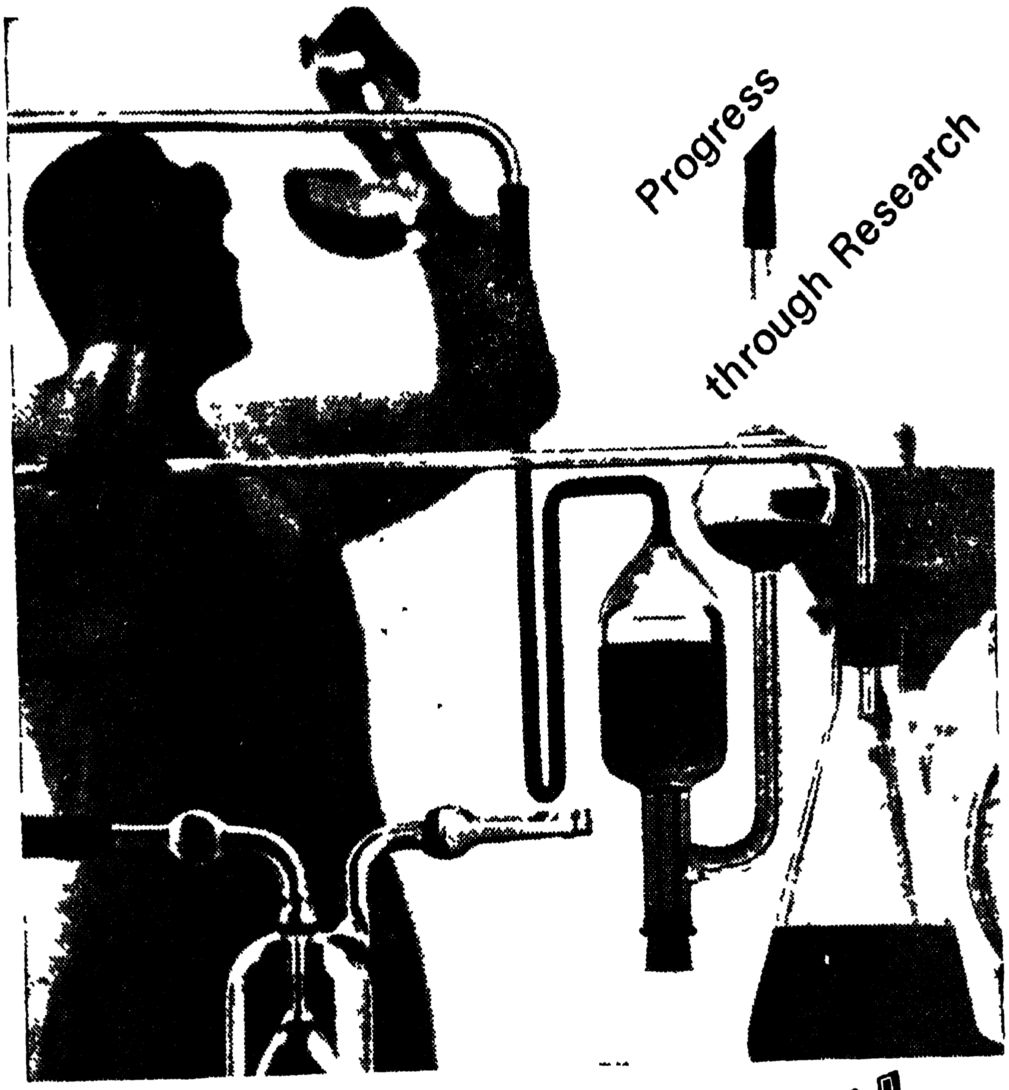

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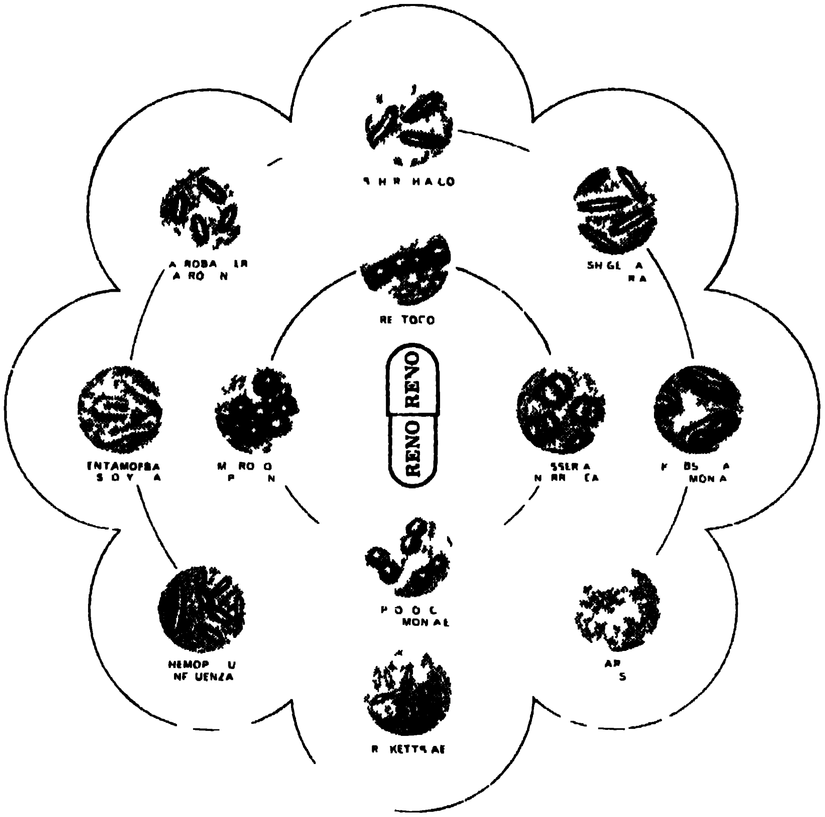

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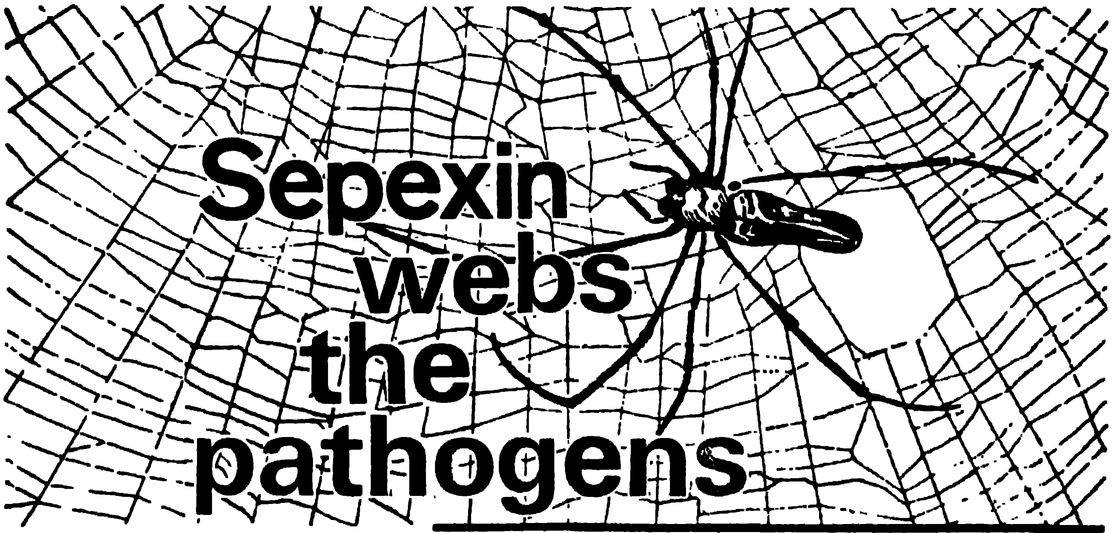

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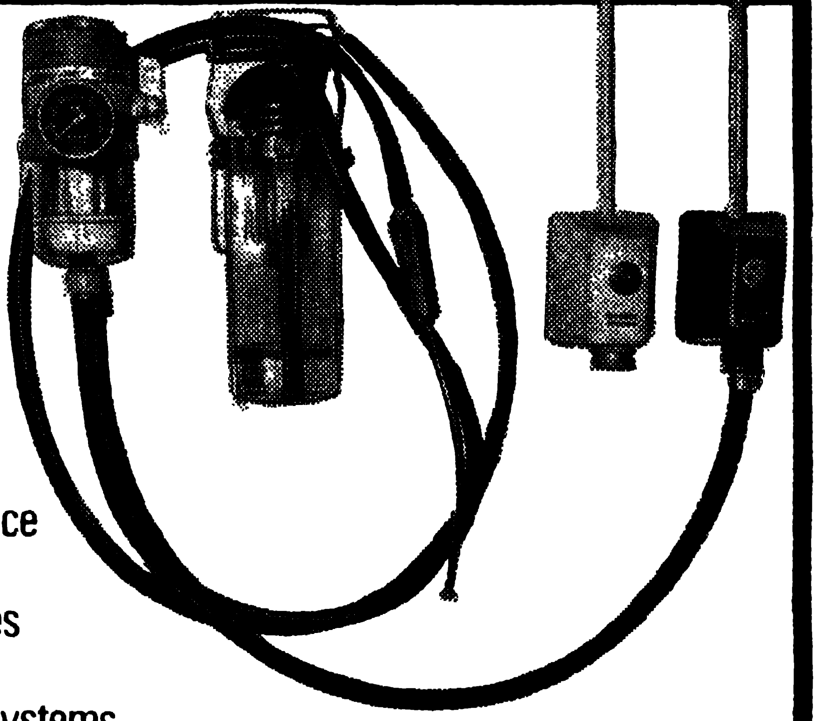

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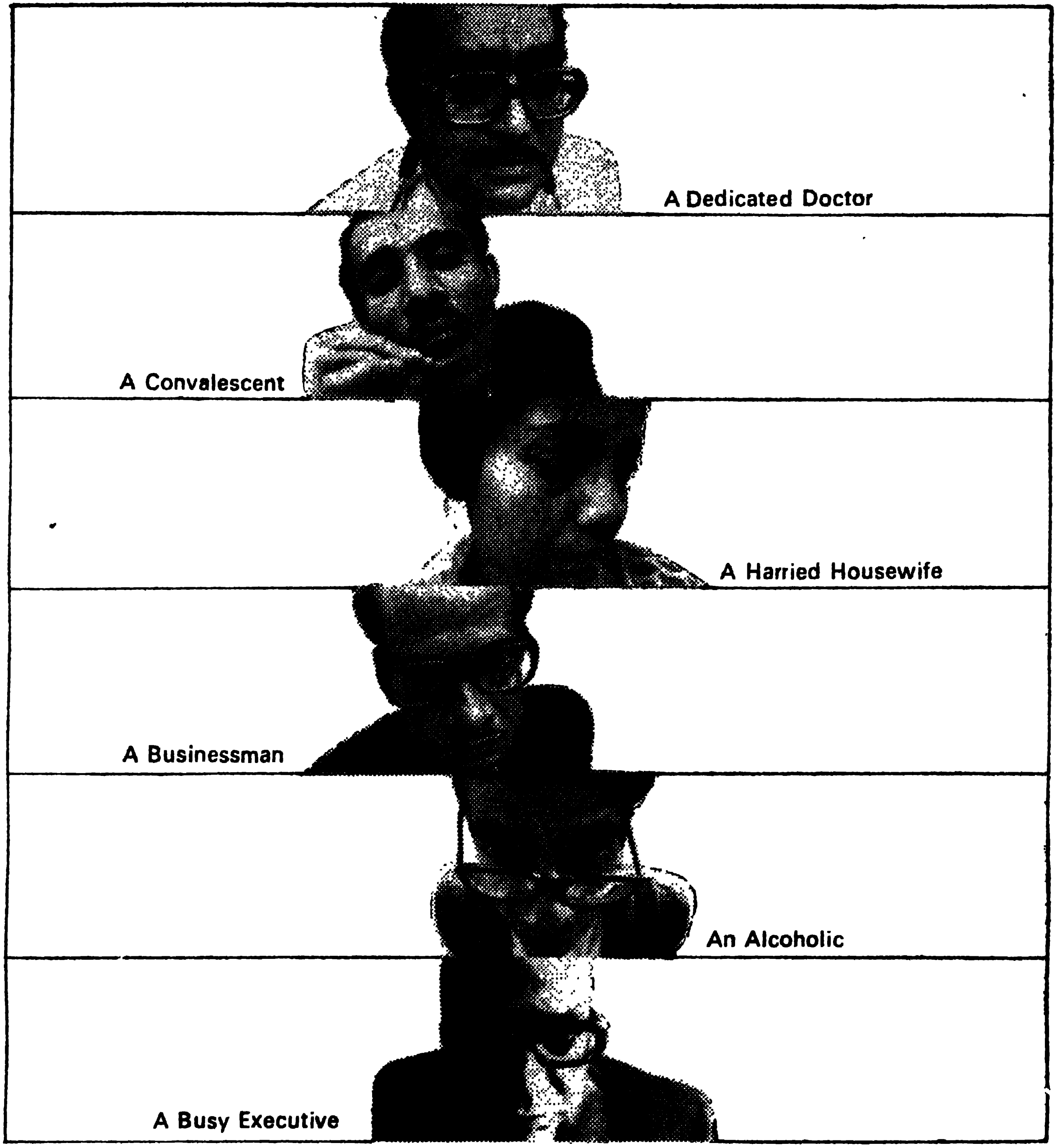

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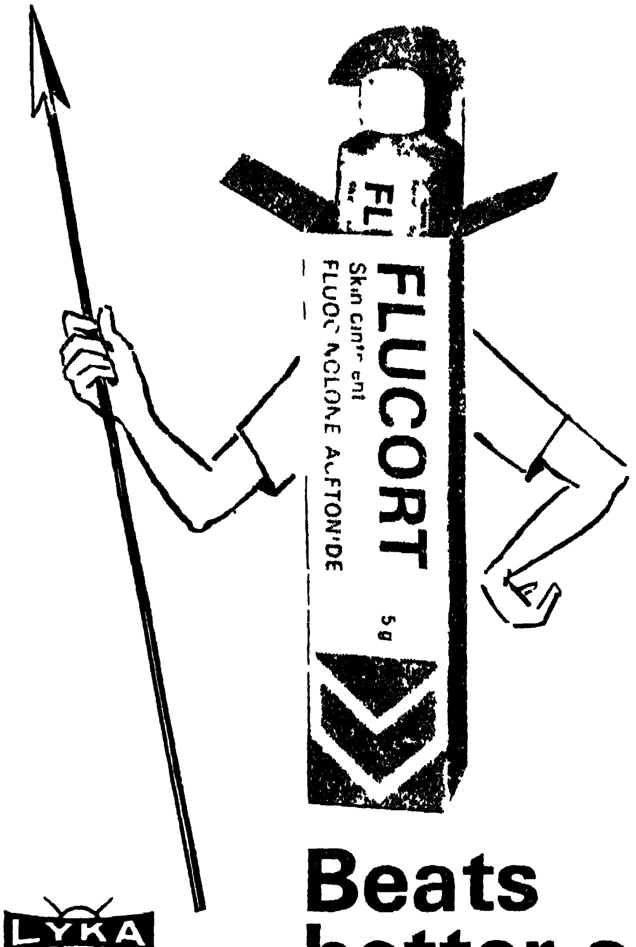

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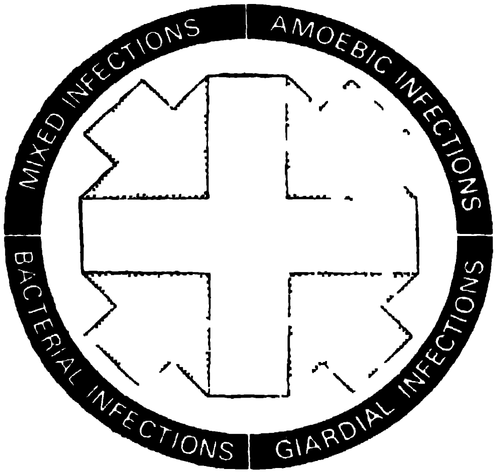

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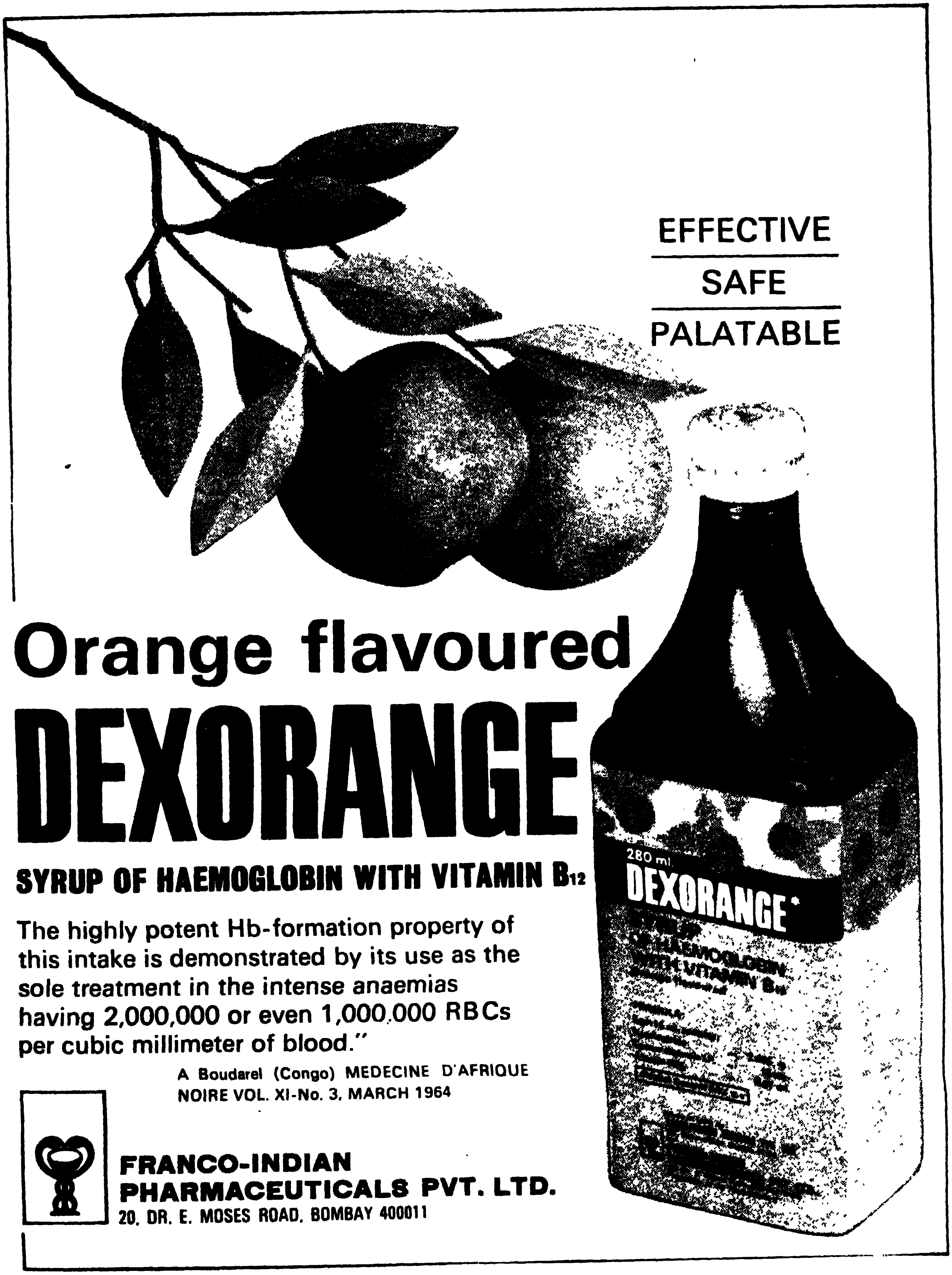

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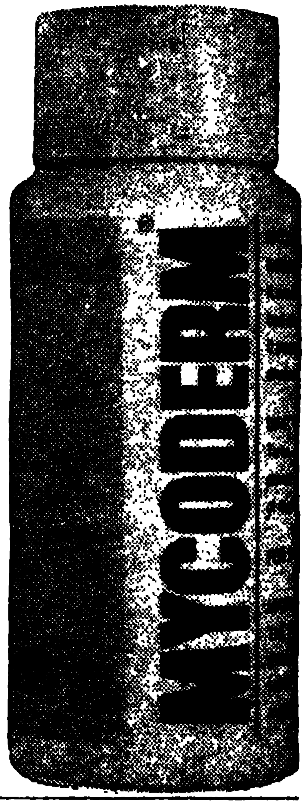

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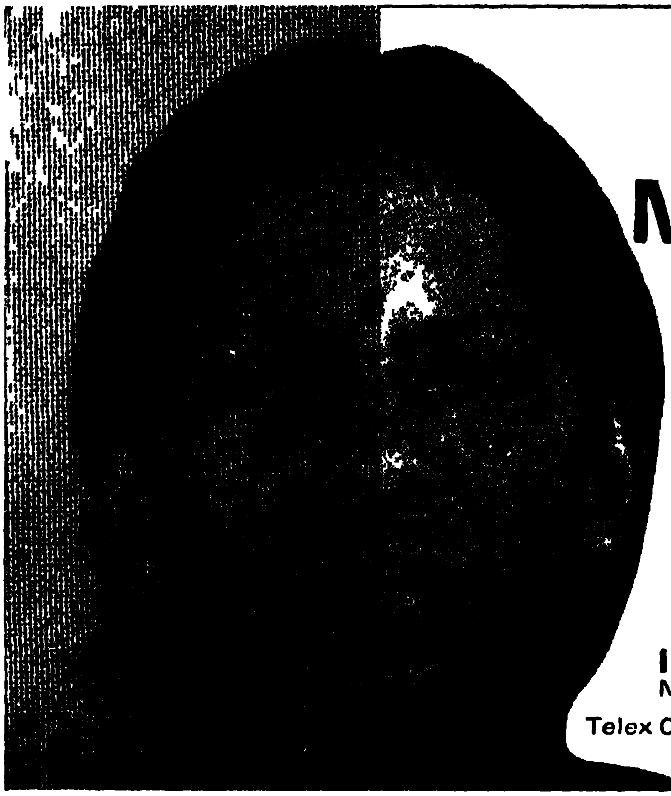

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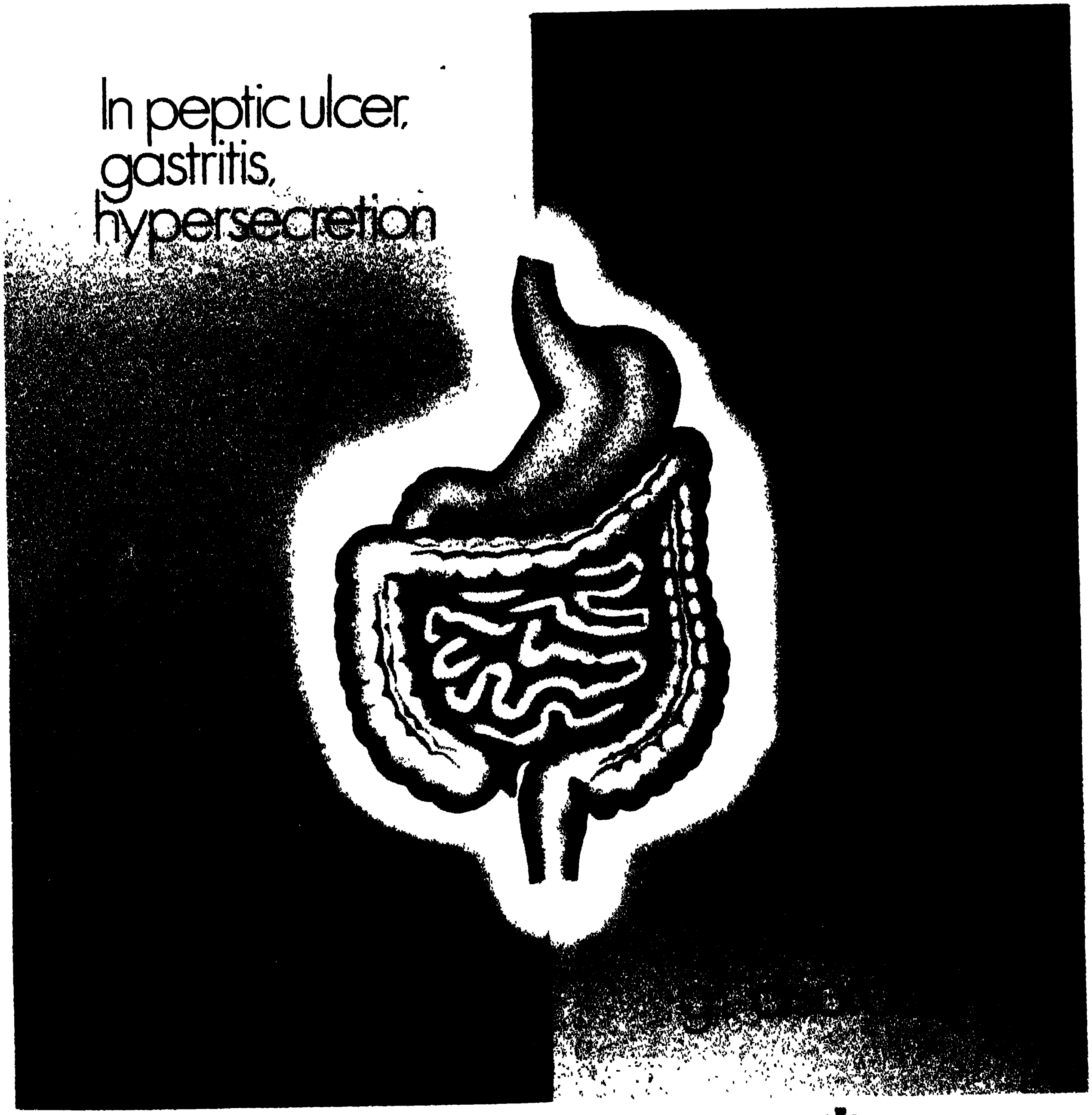

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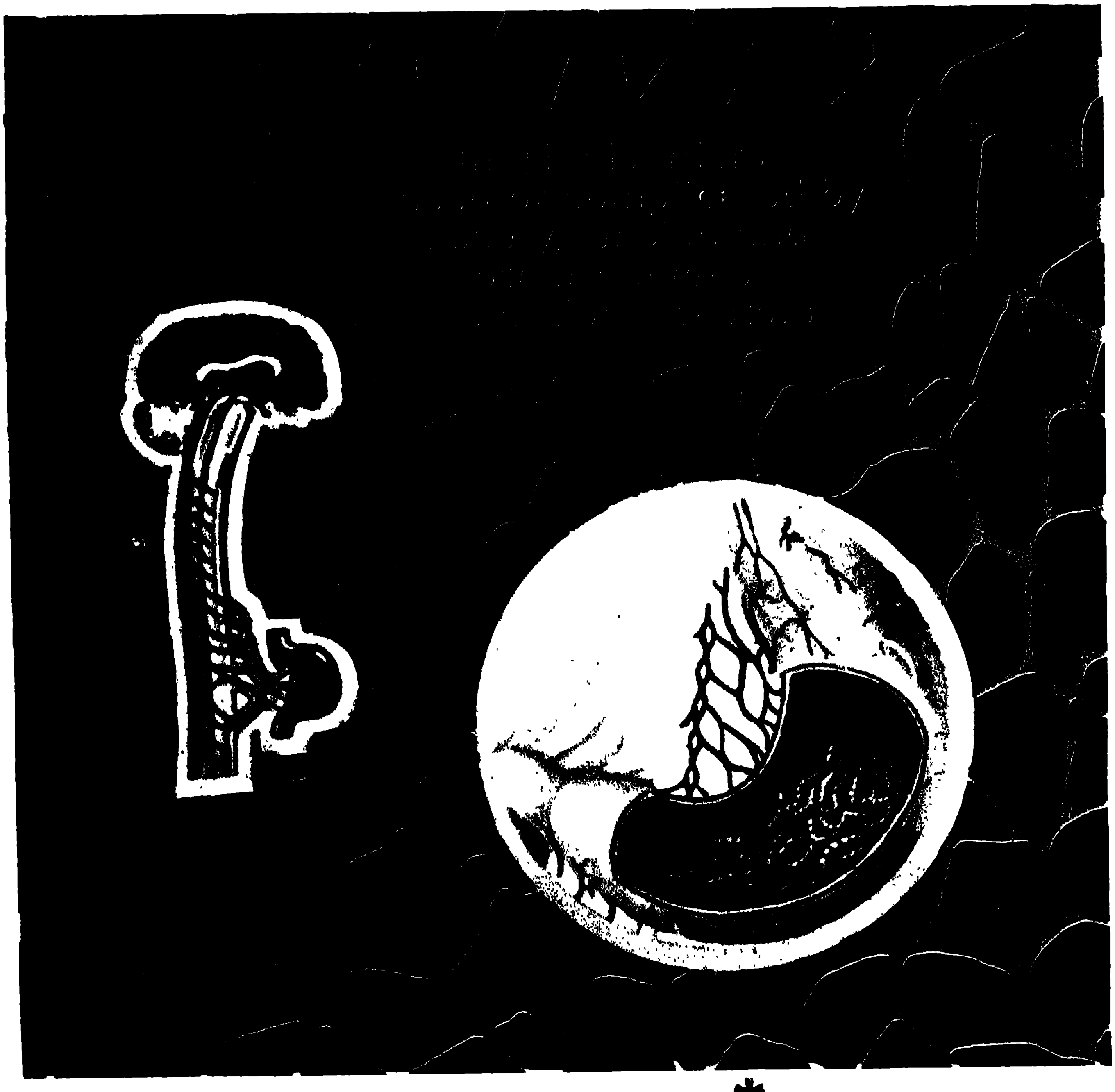

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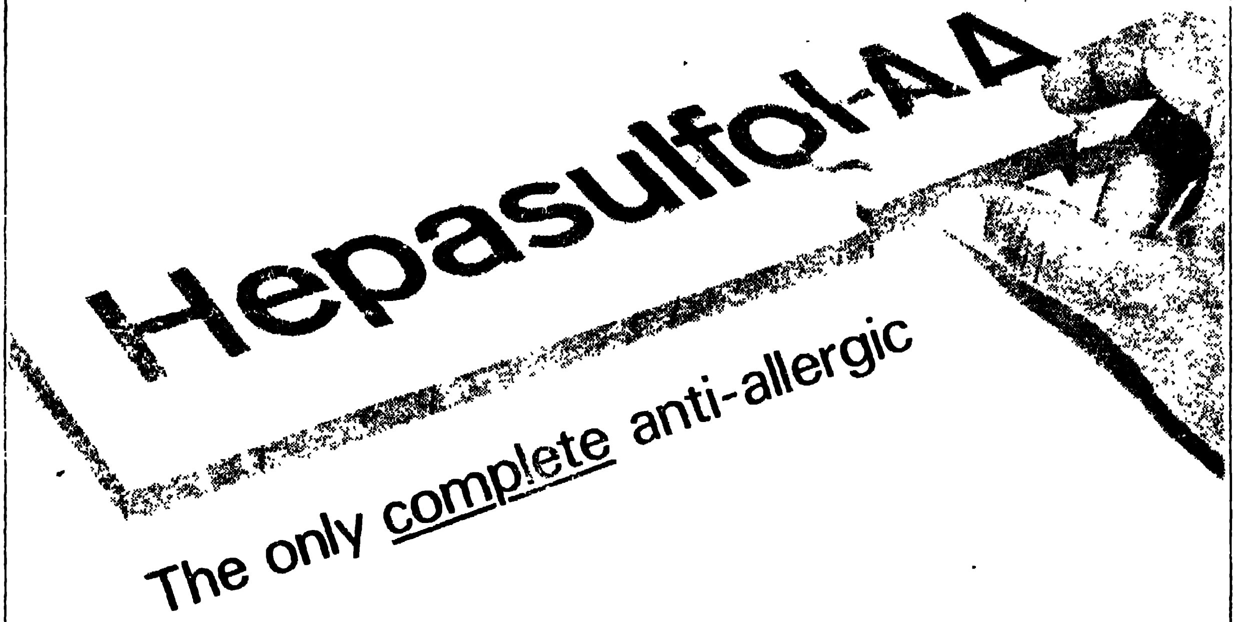

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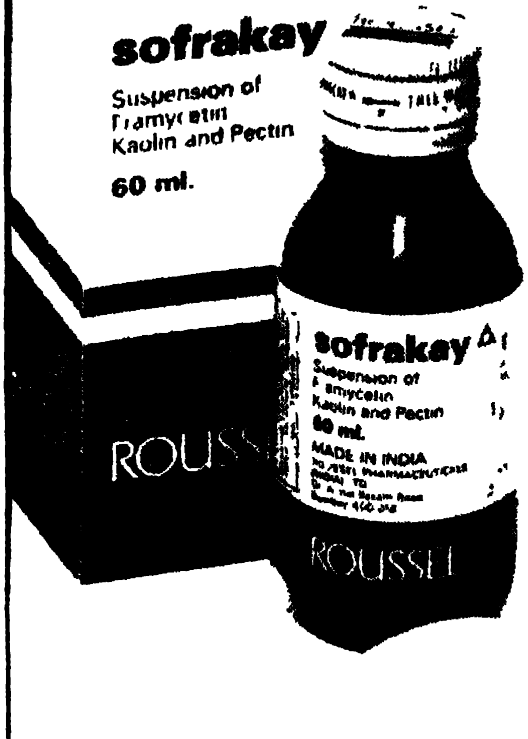
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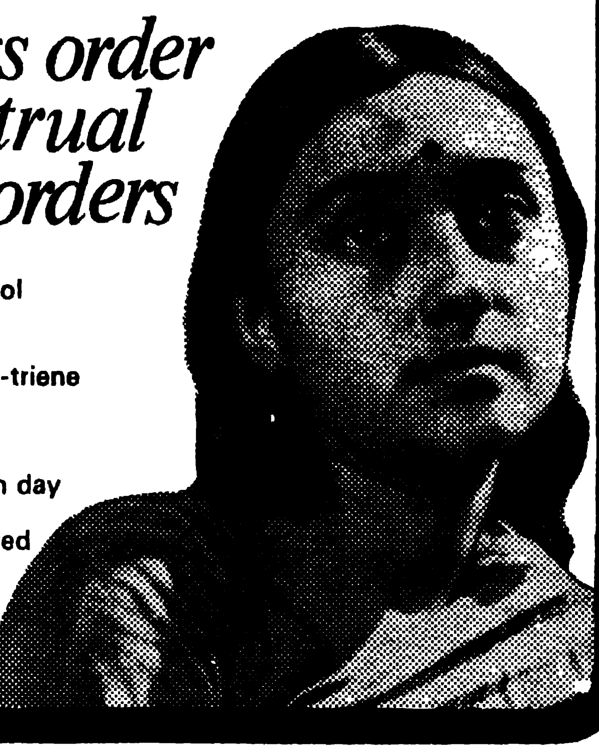

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ORIGINALS AND PAPERS

1

Drug Sensitivity of Urinary Pathogenic Bacteria

A. JOSEPH RAYAN*, K. THARA BAI**, AFZAL UNNISA***, K. LALITHA****

[*Received for publication July 5, 1976*]

Although with the recent antibiotics and chemotherapy mortality and morbidity from urinary tract infections have been much reduced, such infections still occupy the top position in the list of urological disorders. This has been well studied by Garrod *et al.* (1954), Banerjee (1963), Sengupta and Barua (1964), Smallpiece (1964) and Dube *et al.* (1971).

In the present study, the authors have attempted to make a comparative study of *in vitro* susceptibility of various urinary pathogens isolated from urine samples of patients suffering from urinary tract infection to the common antibiotics, viz., penicillin, streptomycin, chloramphenicol, tetracycline, erythromycin and ampicillin and a chemotherapeutic agent, nitrofurantoin.

MATERIAL AND METHOD

Two hundred strains of micro-organisms, Gram-negative bacilli and Gram-positive cocci were isolated from urine samples of patients suffering from urinary tract infections by the routine cultural methods and identified with usual biochemical tests (Bhaskaran and Murti, 1962). The significance of the growth in culture was confirmed by the colony count procedure. The strains were tested for sensitivity to penicillin, streptomycin, chloramphenicol, tetracycline, erythromycin, ampicillin and nitrofurantoin by the disc method. The final concentration of the antibacterial agents in each disc were as follows:

Penicillin—10 units; streptomycin—10 µg.; chloramphenicol—30 µg.; tetracycline—30 µg.; erythromycin—30 µg.; ampicillin—10 µg., nitrofurantoin—300 µg.

Inoculation on digest agar plates were made using broth cultures of the test organism, and the discs were placed at regularly spaced intervals. After incubation at 37°C for 24 hours the diameter of the zone of inhibition was measured in mm. Inhibition zones of 15 mm. and above were taken as sensitive, 12-15 mm. as moderately sensitive and less than 12 mm. as resistant. Standard control organism of known susceptibility pattern was employed as a check on the activity of the discs and on the reproducibility of the test.

RESULTS

Culture of 1514 urine specimens gave 690 positive growth (Table 1).

Table 1—*Showing Percentage Incidence of Organism in 690 Positive Cases*

Organism	No. of cases (%)
Esch. coli	474 (68.69)
Klebsiella	90 (13.04)
Pseudomonas	35 (5.07)
Alc. faecalis	29 (4.2)
Enterococci	17 (2.46)
Coagulase positive *Staph. aureus*	11 (1.59)
Candida	9 (1.3)
Proteus	7 (1.01)
Miscellaneous	18 (2.58)

Two hundred micro-organisms were tested for this study to the 6 antibiotics and one chemotherapeutic agent. Of these 50 were *Esch. coli*,

---

Department of Microbiology, Kilpauk Medical College, Madras
*M.Sc. (Medical Microbiology), Tutor
**M.B.B.S., M.Sc., M.D., Professor
***M.B.B.S., Tutor
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Table 2—*Showing Percentages of Sensitivity and Resistance of Different Organisms to Different Antibacterial Agents*

Organism	Nitrofurantoin		Penicillin		Streptomycin		Chloramphenicol		Tetracycline		Ampicillin		Erythromycin	
	S %	R %	S %	R %	S %	R %	S %	R %	S %	R %	S %	R %	S %	R %
Esch. coli	72	24	10	78	60	36	28	64	18	72	56	34	34	44
Klebsiella	68	24	8	88	60	36	40	56	20	72	36	60	44	36
Pseudomonas	16	72	0	100	12	72	8	80	0	88	16	76	12	80
Alc. faecalis	20	64	0	92	28	60	36	56	28	60	32	64	32	56
Entrerococci	88	8	56	44	64	24	68	20	44	40	60	32	76	24
Staph. aureus	72	24	8	84	52	48	60	28	40	40	64	32	68	20
Proteus	40	52	0	100	16	76	32	64	32	68	8	92	8	76

Organisms showing feeble sensitivity were left out; S—Sensitive, R—Resistant

25 klebsiella, 25 pseudomonas, 25 *Alc. faecalis,* 25 enterococci, 25 *Staph. aureus,* and 25 proteus. The results of the sensitivity test by the disc method are summarised in Table 2.

Overall sensitivity pattern of the 200 strains of micro-organisms to the antibacterial agents is as follows:

The highest percentage of urinary pathogens were sensitive to nitrofurantoin (56 per cent) followed by streptomycin (44 per cent) ampicillin (41 per cent), chloramphenicol (38 per cent), erythromycin (38 per cent), tetracycline (25 per cent) and penicillin (12 per cent).

DISCUSSION

As infections caused by antibiotic resistant bacteria are on the increase, it has become important to determine the antibiogram of different organisms to different antibacterial agents from time to time to help the clinician for determining the effective line of treatment. Promiscuous use of antibiotics, use of a variety of chemotherapeutic agents, unrestricted and indiscriminate use of various antibacterial agents lead to rapid development of resistant mutants (Mehrotra and Jain, 1969; Roy *et al.*, 1969; Gillespie *et al.*, 1971; Balakrishnan and Joseph, 1972; Grunberg, 1976).

In the present study the authors have come across different types of bacteria like *Esch. coli,* klebsiella, pseudomonas, *Alc. faecalis,* enterococci, *Staph. aureus* and proteus, which are arranged in order of their degree of pathogenicity.

The present study clearly shows that nitrofurantoin is the most effective drug in the treatment of urinary tract infections, showing an overall inhibition of 56 per cent of urinary pathogens; 72 per cent of *Esch. coli,* 68 per cent of klebsiella, 16 per cent strains of pseudomonas, 20 per cent strains of *Alc. faecalis,* 88 per cent strains of enterococci, 72 per cent strains of *Staph. aureus* and 40 per cent strains of proteus were sensitive to this drug (Table 2). This finding is quite in agreement with that of Bhaskaran and Murti (*loc. cit.*). The advantages of this drug are active excretion in urine (40 per cent), oral route of administration, low toxicity and slow emergence of resistant mutants. Nitrofurantoin can, therefore, still be considered the drug of choice for the treatment of urinary tract infections. However, another important feature noticed in the present series was that a fairly large number of strains of bacteria were resistant to all drugs.

It has been observed by the previous workers (Bhaskaran and Rao, 1963) that among the antibiotics tested chloramphenicol was the most effective, inhibiting 69 per cent of strains of different organisms followed by tetracycline (49.5 per cent), streptomycin (45.5 per cent) and penicillin (1.5 per cent). In the present study the authors recorded an observation which was different from the previous observations. In the present study among the antibiotics tested streptomycin was found to be highly effective (44 per cent) followed by ampicillin (41 per cent), chloramphenicol (38 per cent), erythromycin (38 per cent), tetracycline (25 per cent) and penicillin (12 per cent). Also, the overall percentage of susceptibility pattern is decreasing each year. It has further been observed by the authors that the incidence of emergence of resistant mutants are increasing year by year, challenging the human race for discovery of newer antibacterial agents.

SUMMARY

In vitro sensitivity of 200 strains of urinary pathogenic bacteria was performed to 6 antibiotics and one chemotherapeutic agent.

The highest percentage (56 per cent) of urinary pathogens was sensitive to nitrofurantoin followed by streptomycin (44 per cent),

ampicillin (41 per cent), chloramphenicol (38 per cent), erythromycin (38 per cent), tetracycline (25 per cent) and penicillin (12 per cent). Among the antibiotics tested streptomycin was observed to be the most effective in urinary tract infections by different organisms. The chemotherapeutic drug nitrofurantoin was found to be the drug of choice for urinary tract infections; the advantages of this drug have also been discussed.

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2

Study of the Pre-and Postoperative Gynaecological Cases with Special Reference to the Changes in the Electrolyte Balance (Sodium and Potassium)

S. MITRA*, M. SARKAR**

[Received for publication March 3, 1975]

Surgery has always been used as a method of treatment in ancient times as well as in the present days. Success of surgery does not depend only on dexterity of the surgeon but also to a great extent on the pre- and postoperative care of the patients. One of the essential factors in the postoperative care is knowledge about the water and electrolyte balance in the body. Appraisal of the electrolyte distribution is a prerequisite for the postoperative care.

Since the beginning of this century many workers studied the postoperative conditions following surgical trauma which were more and more clear in the successive years. In the last 2 decades many important observations related to water and electrolyte balance and the various neurohormonal control on the water and electrolytes in the body came into light. Difficult and time consuming methods for detecting electrolytes in the body fluids were replaced by easier techniques with the advent of flame photometer since 1945. All these things brought a new era in the field of postoperative management.

MATERIAL AND METHOD

In the present series 40 gynaecological cases were studied in the Gynaecological Department of the S. S. K. M. Hospital. Of the 40 cases, 20 underwent major operations, another 20 had minor surgery. Out of 20 major cases, 10 cases had some major abdominal operations and in another 10 cases some major vaginal operations were done.

After admission, for each case a detailed history was taken and full clinical examination and pre-operative investigations were done. Special care was taken to elicit any past history of urinary infection, kidney diseases and chronic wasting diseases which might have reasonable influence over kidney. Past history of surgical interference, if any, and nature of recovery were noted. From the point of view of study the following pre-operative investigative procedures were done: (i) Twenty-four hours' urinary output, (ii) specific gravity of urine from morning specimen, (iii) serum sodium and potassium and (iv) urinary concentration of sodium and potassium from samples of 24 hours' urine collection.

All patients selected for the study did not have any pre-operative evidence of renal impairment and electrolyte balance was normal. No emergency case was included. During operation, blood loss (approximate), infusions and transfusions given were noted. Five per cent dextrose solution and blood whenever necessary were administered during operation.

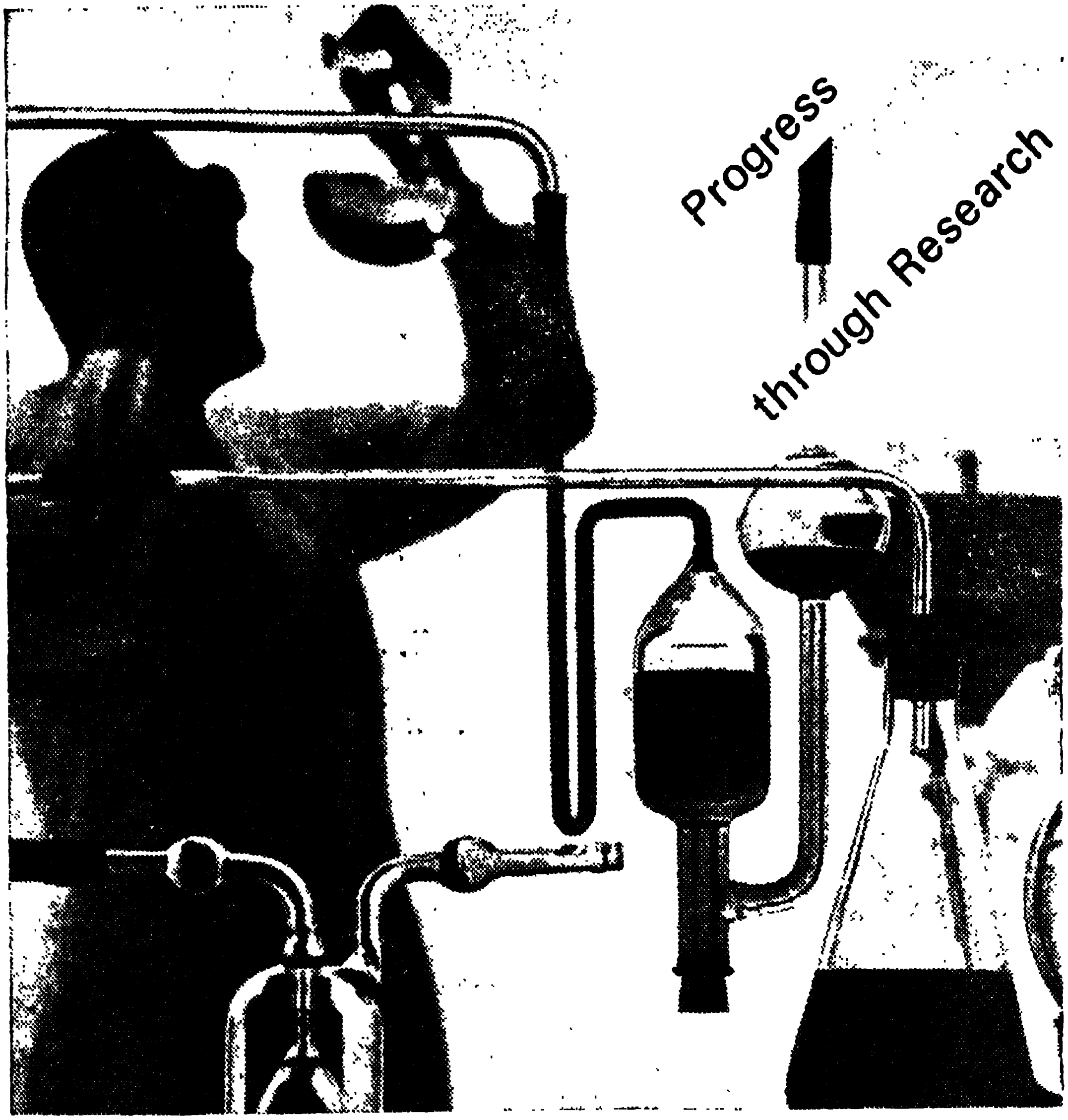
During postoperative period, along with daily clinical check up, daily total urinary output, specific gravity of urine, serum sodium and potassium and urinary concentration of sodium and potassium were noted up to the 5th post-

---

Department of Obstetrics and Gynaecology, R. G. Kar Medical College and Hospital, Calcutta

*M.B.B.S., D.G.O., D.M.C.W., M.S. (Obstetrics and Gynaecology), Registrar

**M.B.B.S., D.G.O., M.O., Assistant Professor



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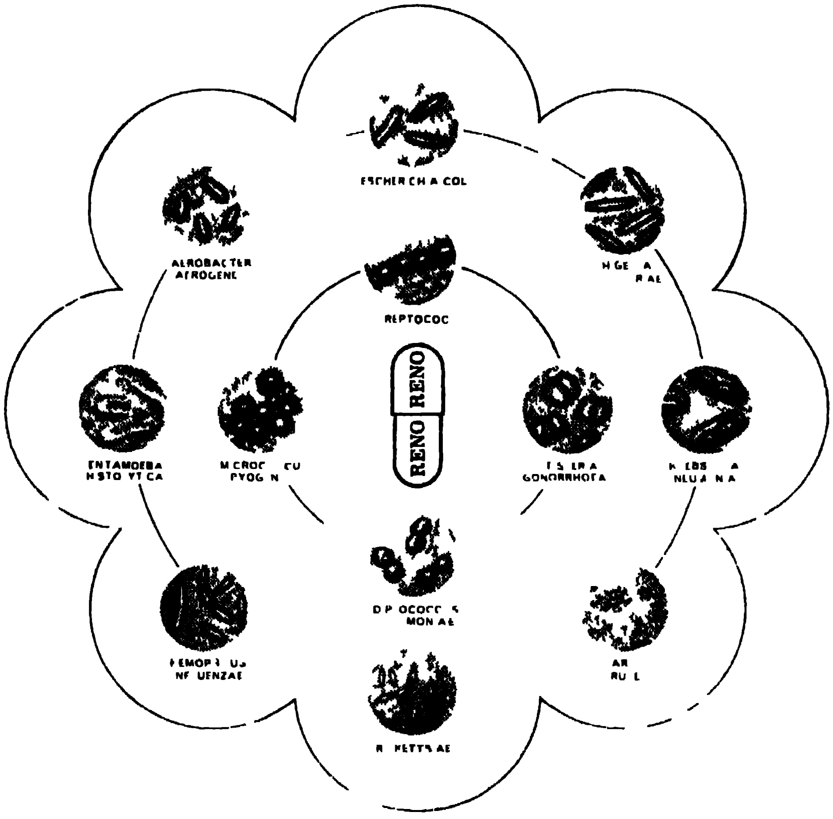

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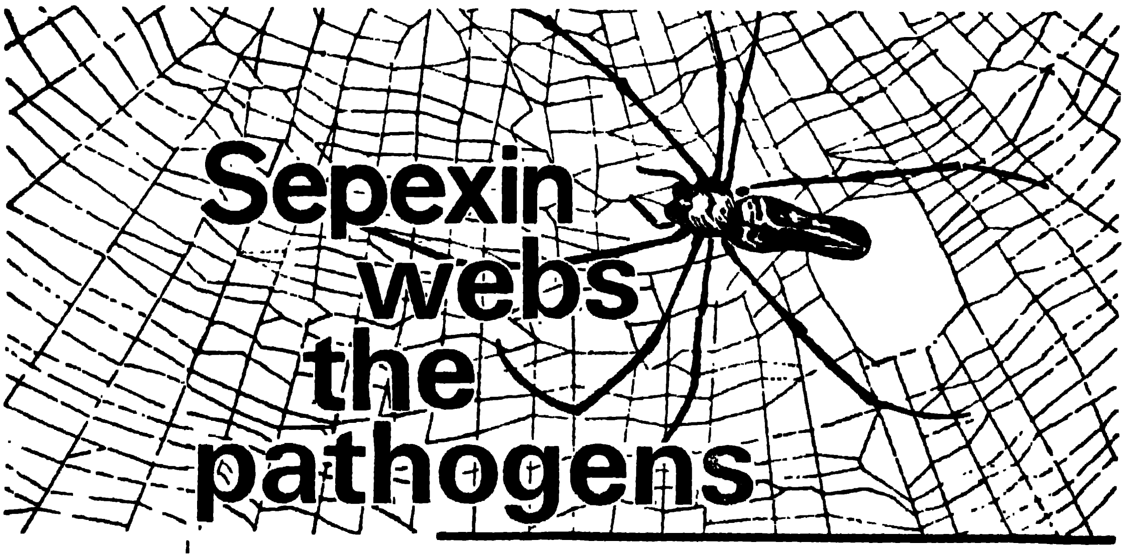

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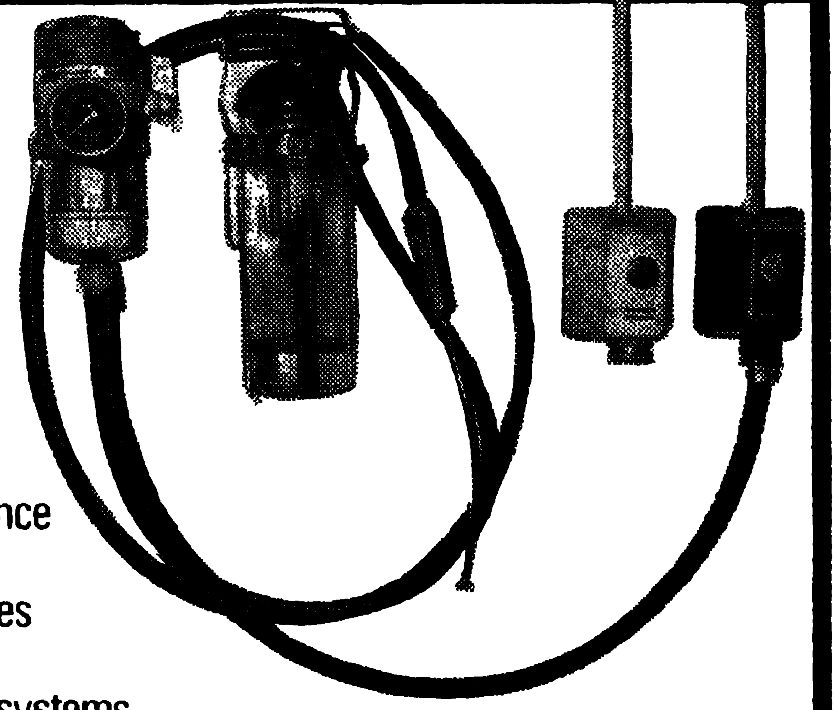

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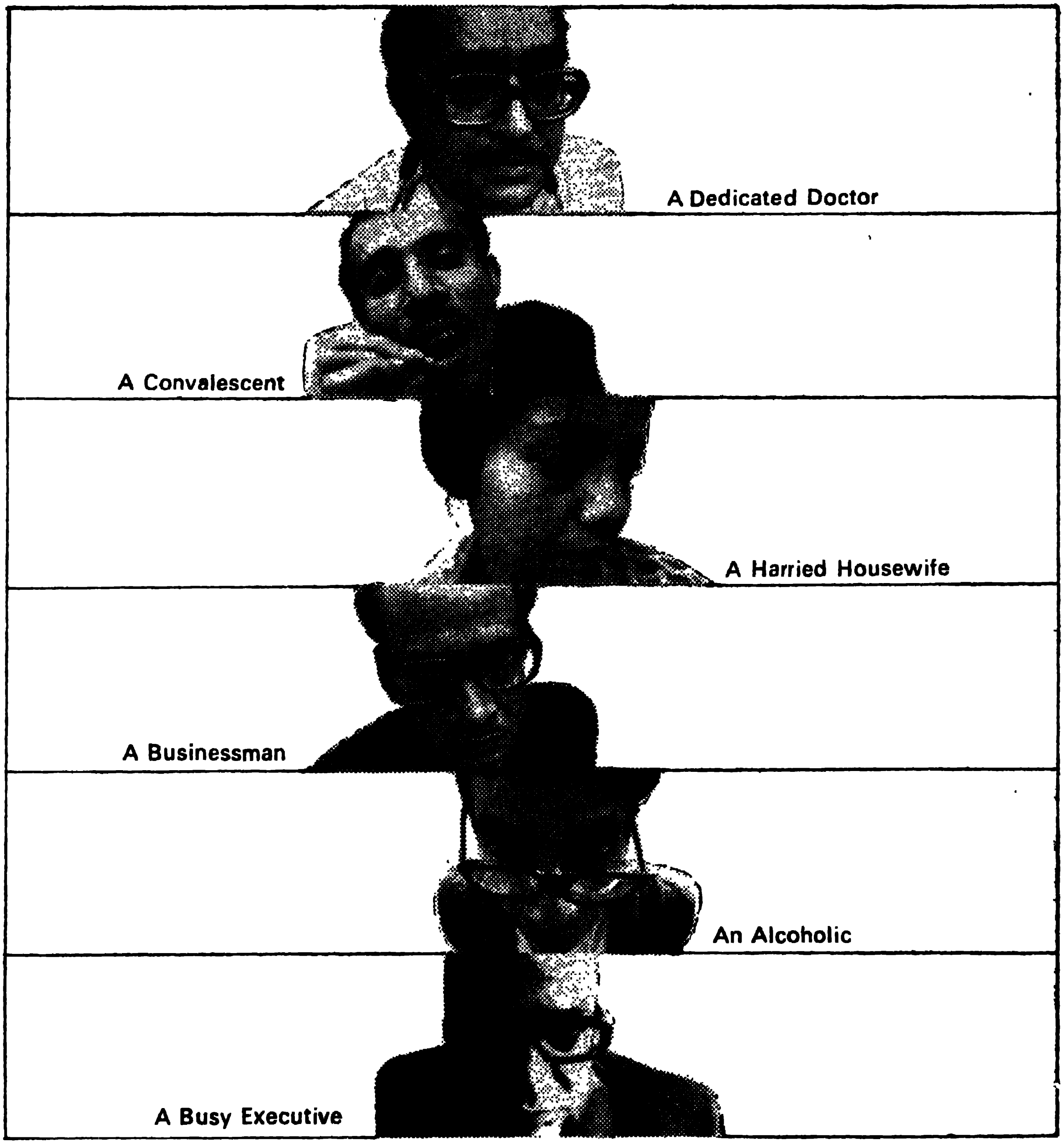

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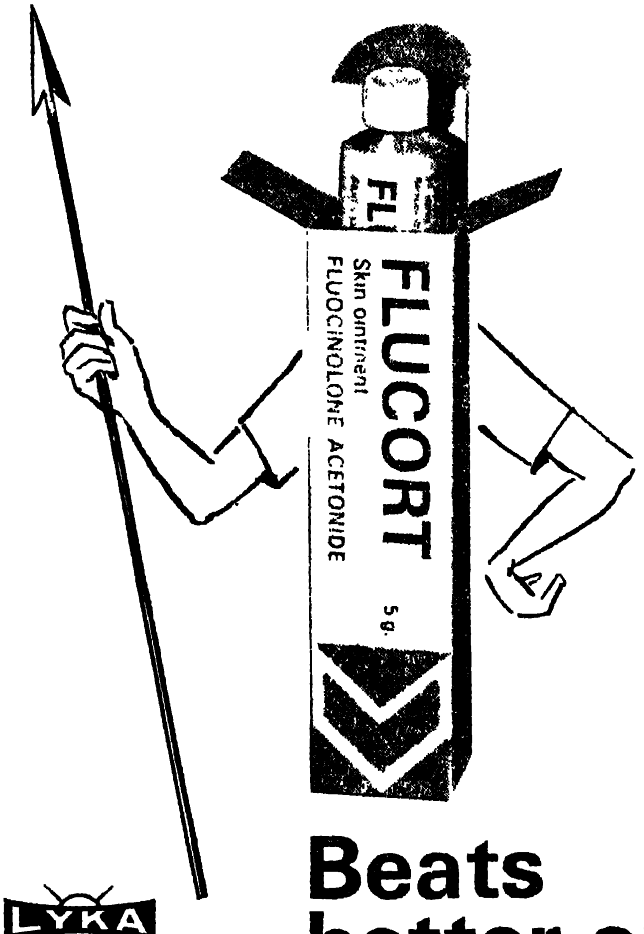

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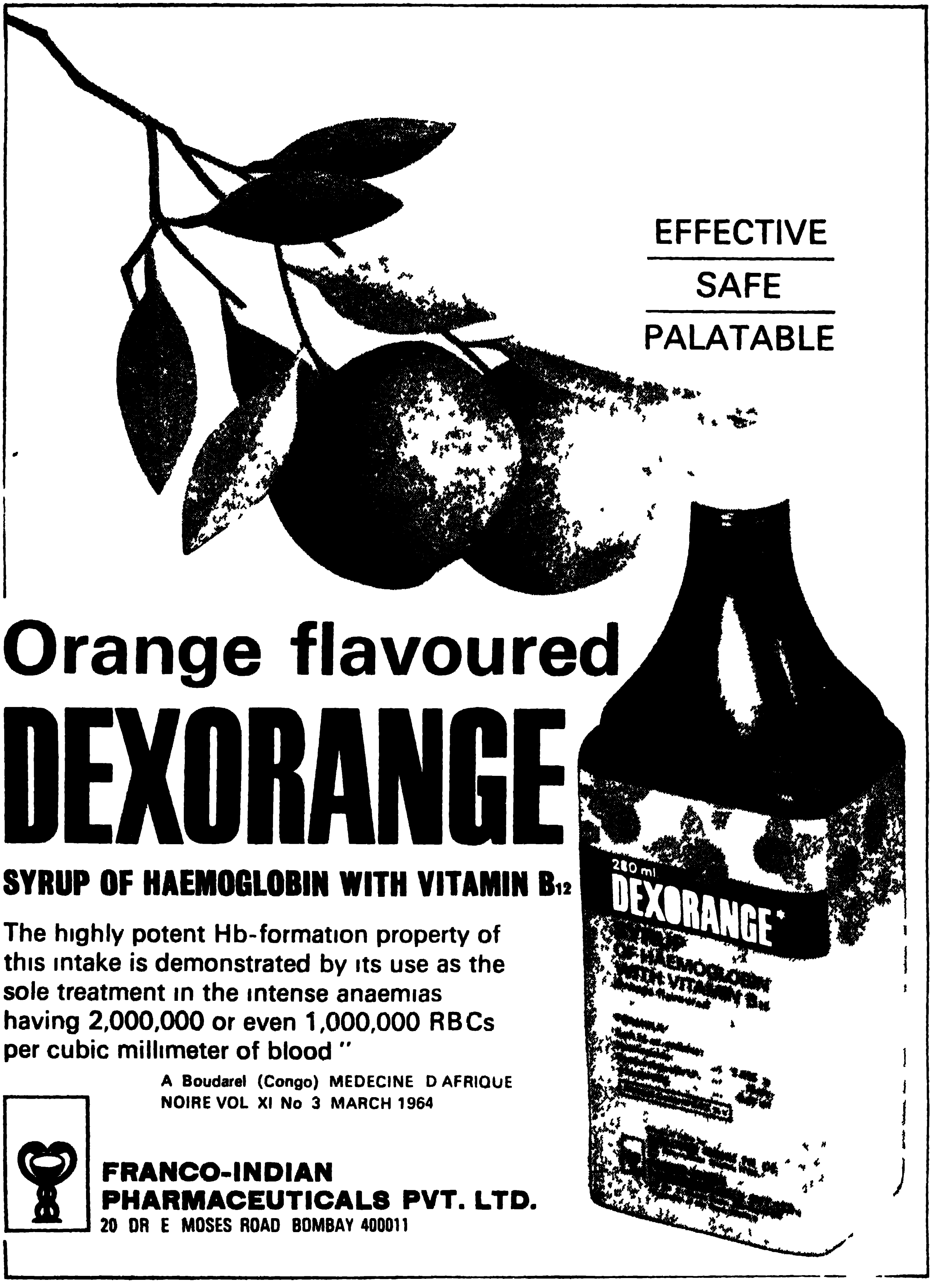
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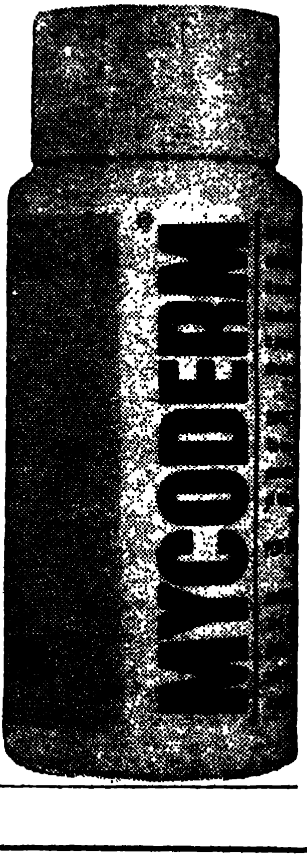

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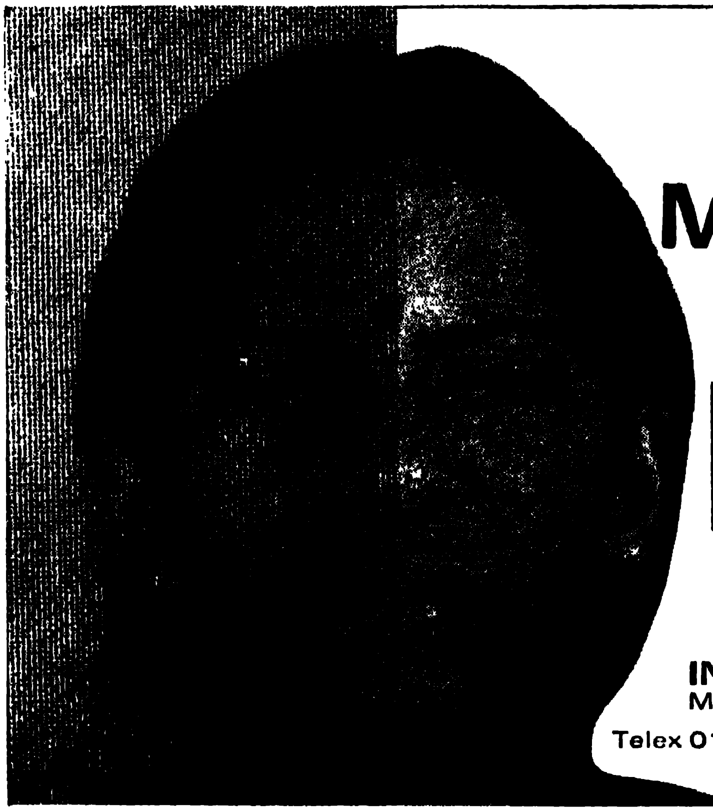

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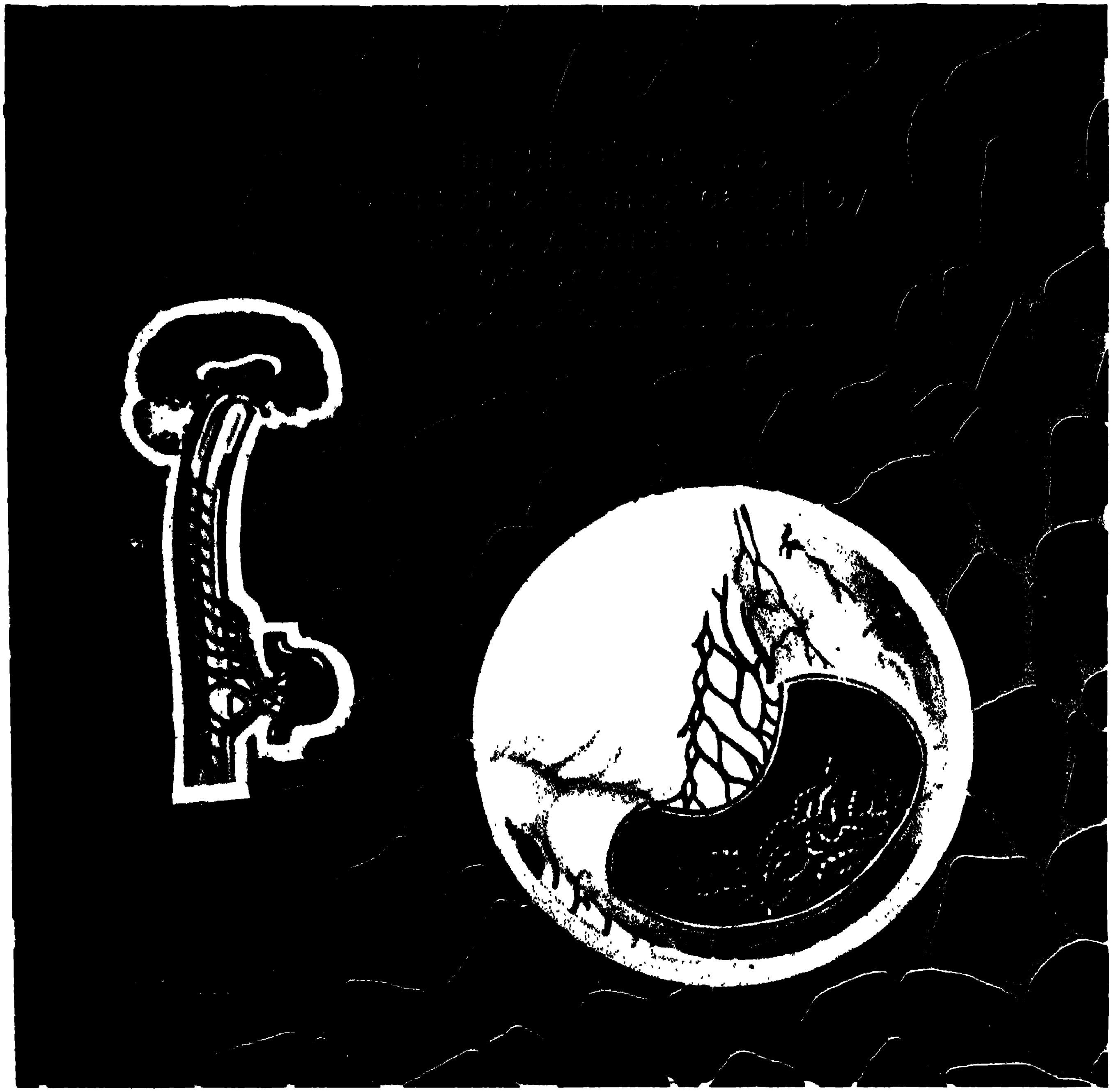

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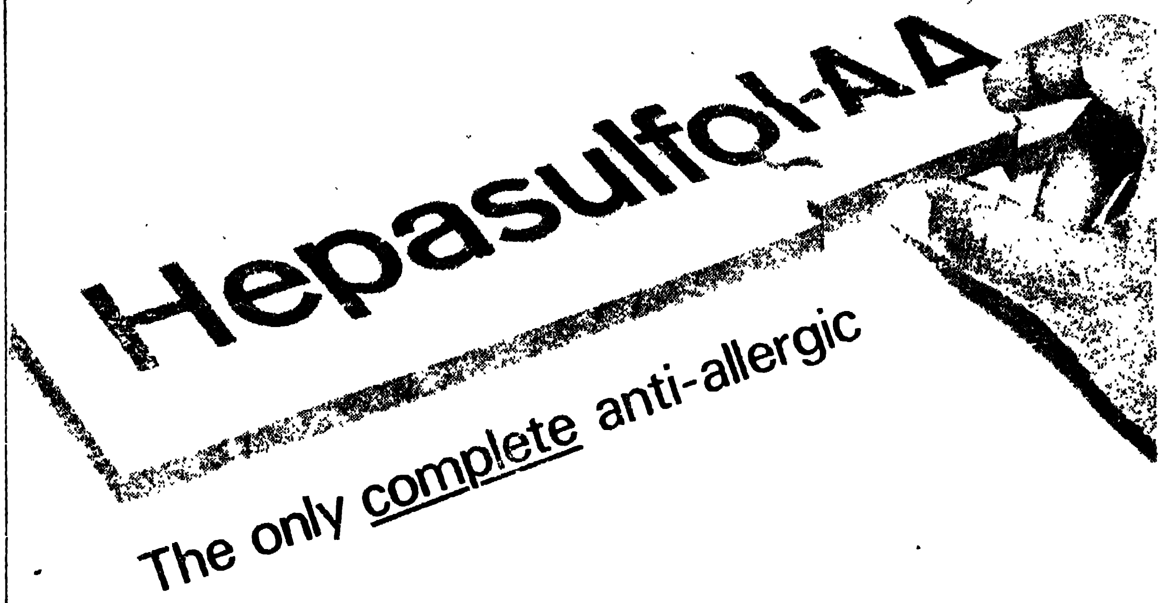

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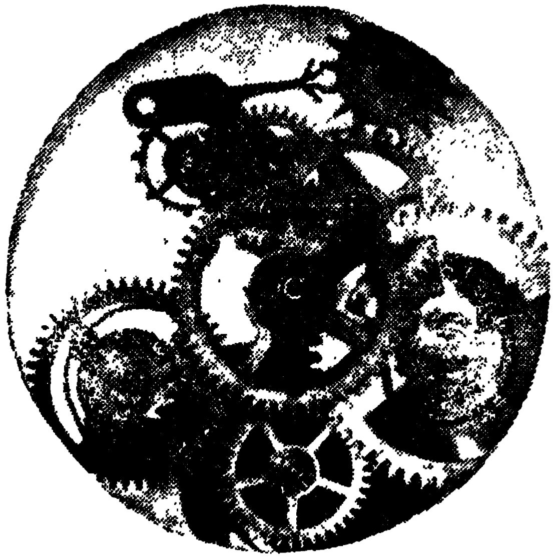

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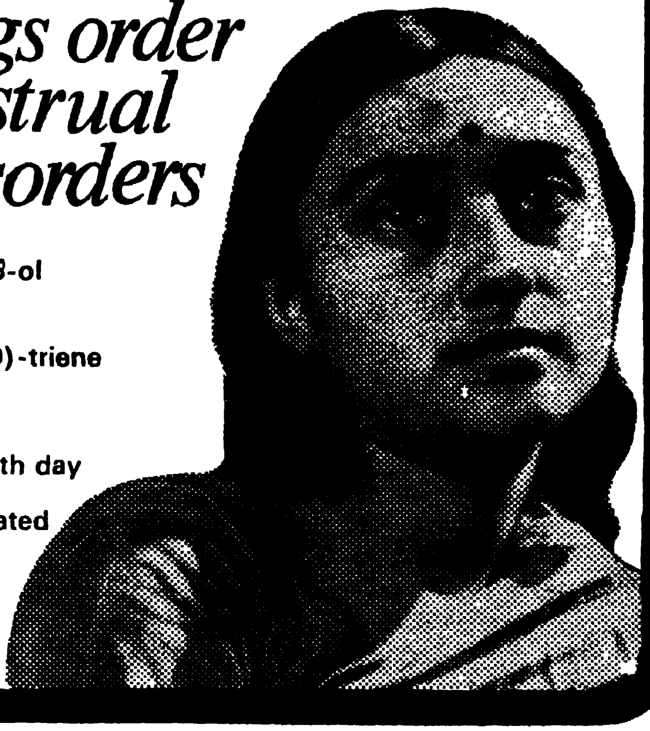

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ORIGINALS AND PAPERS

1

Drug Sensitivity of Urinary Pathogenic Bacteria

A. JOSEPH RAYAN*, K. THARA BAI**, AFZAL UNNISA***, K. LALITHA****

[*Received for publication July 5, 1976*]

Although with the recent antibiotics and chemotherapy mortality and morbidity from urinary tract infections have been much reduced, such infections still occupy the top position in the list of urological disorders. This has been well studied by Garrod *et al.* (1954), Banerjee (1963), Sengupta and Barua (1964), Smallpiece (1964) and Dube *et al.* (1971).

In the present study, the authors have attempted to make a comparative study of *in vitro* susceptibility of various urinary pathogens isolated from urine samples of patients suffering from urinary tract infection to the common antibiotics, viz., penicillin, streptomycin, chloramphenicol, tetracycline, erythromycin and ampicillin and a chemotherapeutic agent, nitrofurantoin.

MATERIAL AND METHOD

Two hundred strains of micro-organisms, Gram-negative bacilli and Gram-positive cocci, were isolated from urine samples of patients suffering from urinary tract infections by the routine cultural methods and identified with usual biochemical tests (Bhaskaran and Murti, 1962). The significance of the growth in culture was confirmed by the colony count procedure. The strains were tested for sensitivity to penicillin, streptomycin, chloramphenicol, tetracycline, erythromycin, ampicillin and nitrofurantoin by the disc method. The final concentration of the antibacterial agents in each disc were as follows:

Penicillin—10 units; streptomycin—10 µg.; chloramphenicol—30 µg.; tetracycline—30 µg.; erythromycin—30 µg.; ampicillin—10 µg., nitrofurantoin—300 µg.

Inoculation on digest agar plates were made using broth cultures of the test organism, and the discs were placed at regularly spaced intervals. After incubation at 37°C for 24 hours the diameter of the zone of inhibition was measured in mm. Inhibition zones of 15 mm. and above were taken as sensitive, 12-15 mm. as moderately sensitive and less than 12 mm. as resistant. Standard control organism of known susceptibility pattern was employed as a check on the activity of the discs and on the reproducibility of the test.

RESULTS

Culture of 1514 urine specimens gave 690 positive growth (Table 1).

Table 1—*Showing Percentage Incidence of Organism in 690 Positive Cases*

Organism	No. of cases (%)
Esch. coli	474 (68.69)
Klebsiella	90 (13.04)
Pseudomonas	35 (5.07)
Alc. faecalis	29 (4.2)
Enterococci	17 (2.46)
Coagulase positive *Staph. aureus*	11 (1.59)
Candida	9 (1.3)
Proteus	7 (1.01)
Miscellaneous	18 (2.58)

Two hundred micro-organisms were tested for this study to the 6 antibiotics and one chemotherapeutic agent. Of these 50 were *Esch. coli*,

---

Department of Microbiology, Kilpauk Medical College, Madras
*M.Sc. (Medical Microbiology), Tutor
**M.B.B.S., M.Sc., M.D., Professor
***M.B.B.S., Tutor
****M.B.B.S., Tutor

Table 2—*Showing Percentages of Sensitivity and Resistance of Different Organisms to Different Antibacterial Agents*

Organism	Nitrofurantoin		Penicillin		Streptomycin		Chloramphenicol		Tetracycline		Ampicillin		Erythromycin	
	S %	R %	S %	R %	S %	R %	S %	R %	S %	R %	S %	R %	S %	R %
Esch. coli	72	24	10	78	60	36	28	64	18	72	56	34	34	44
Klebsiella	68	24	8	88	60	36	40	56	20	72	36	60	44	36
Pseudomonas	16	72	0	100	12	72	8	80	0	88	16	76	12	80
Alc. faecalis	20	64	0	92	28	60	36	56	28	60	32	64	32	56
Entrerococci	88	8	56	44	64	24	68	20	44	40	60	32	76	24
Staph. aureus	72	24	8	84	52	48	60	28	40	40	64	32	68	20
Proteus	40	52	0	100	16	76	32	64	32	68	8	92	8	76

Organisms showing feeble sensitivity were left out; S—Sensitive, R—Resistant

25 klebsiella, 25 pseudomonas, 25 *Alc. faecalis,* 25 enterococci, 25 *Staph. aureus,* and 25 proteus. The results of the sensitivity test by the disc method are summarised in Table 2.

Overall sensitivity pattern of the 200 strains of micro-organisms to the antibacterial agents is as follows:

The highest percentage of urinary pathogens were sensitive to nitrofurantoin (56 per cent) followed by streptomycin (44 per cent) ampicillin (41 per cent), chloramphenicol (38 per cent), erythromycin (38 per cent), tetracycline (25 per cent) and penicillin (12 per cent).

DISCUSSION

As infections caused by antibiotic resistant bacteria are on the increase, it has become important to determine the antibiogram of different organisms to different antibacterial agents from time to time to help the clinician for determining the effective line of treatment. Promiscuous use of antibiotics, use of a variety of chemotherapeutic agents, unrestricted and indiscriminate use of various antibacterial agents lead to rapid development of resistant mutants (Mehrotra and Jain, 1969; Roy *et al.*, 1969; Gillespie *et al.*, 1971; Balakrishnan and Joseph, 1972; Grunberg, 1976).

In the present study the authors have come across different types of bacteria like *Esch. coli,* klebsiella, pseudomonas, *Alc. faecalis,* enterococci, *Staph. aureus* and proteus, which are arranged in order of their degree of pathogenicity.

The present study clearly shows that nitrofurantoin is the most effective drug in the treatment of urinary tract infections, showing an overall inhibition of 56 per cent of urinary pathogens; 72 per cent of *Esch. coli,* 68 per cent of klebsiella, 16 per cent strains of pseudomonas, 20 per cent strains of *Alc. faecalis,* 88 per cent strains of enterococci, 72 per cent strains of *Staph. aureus* and 40 per cent strains of proteus were sensitive to this drug (Table 2). This finding is quite in agreement with that of Bhaskaran and Murti (*loc. cit.*). The advantages of this drug are active excretion in urine (40 per cent), oral route of administration, low toxicity and slow emergence of resistant mutants. Nitrofurantoin can, therefore, still be considered the drug of choice for the treatment of urinary tract infections. However, another important feature noticed in the present series was that a fairly large number of strains of bacteria were resistant to all drugs.

It has been observed by the previous workers (Bhaskaran and Rao, 1963) that among the antibiotics tested chloramphenicol was the most effective, inhibiting 69 per cent of strains of different organisms followed by tetracycline (49.5 per cent), streptomycin (45.5 per cent) and penicillin (1.5 per cent). In the present study the authors recorded an observation which was different from the previous observations. In the present study among the antibiotics tested streptomycin was found to be highly effective (44 per cent) followed by ampicillin (41 per cent), chloramphenicol (38 per cent), erythromycin (38 per cent), tetracycline (25 per cent) and penicillin (12 per cent). Also, the overall percentage of susceptibility pattern is decreasing each year. It has further been observed by the authors that the incidence of emergence of resistant mutants are increasing year by year, challenging the human race for discovery of newer antibacterial agents.

SUMMARY

In vitro sensitivity of 200 strains of urinary pathogenic bacteria was performed to 6 antibiotics and one chemotherapeutic agent.

The highest percentage (56 per cent) of urinary pathogens was sensitive to nitrofurantoin followed by streptomycin (44 per cent),

ampicillin (41 per cent), chloramphenicol (38 per cent), erythromycin (38 per cent), tetracycline (25 per cent) and penicillin (12 per cent). Among the antibiotics tested streptomycin was observed to be the most effective in urinary tract infections by different organisms. The chemotherapeutic drug nitrofurantoin was found to be the drug of choice for urinary tract infections; the advantages of this drug have also been discussed.

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2

Study of the Pre-and Postoperative Gynaecological Cases with Special Reference to the Changes in the Electrolyte Balance (Sodium and Potassium)

S. MITRA*, M. SARKAR**

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Surgery has always been used as a method of treatment in ancient times as well as in the present days. Success of surgery does not depend only on dexterity of the surgeon but also to a great extent on the pre- and postoperative care of the patients. One of the essential factors in the postoperative care is knowledge about the water and electrolyte balance in the body. Appraisal of the electrolyte distribution is a prerequisite for the postoperative care.

Since the beginning of this century many workers studied the postoperative conditions following surgical trauma which were more and more clear in the successive years. In the last 2 decades many important observations related to water and electrolyte balance and the various neurohormonal control on the water and electrolytes in the body came into light. Difficult and time consuming methods for detecting electrolytes in the body fluids were replaced by easier techniques with the advent of flame photometer since 1945. All these things brought a new era in the field of postoperative management.

MATERIAL AND METHOD

In the present series 40 gynaecological cases were studied in the Gynaecological Department of the S. S. K. M. Hospital. Of the 40 cases, 20 underwent major operations, another 20 had minor surgery. Out of 20 major cases, 10 cases had some major abdominal operations and in another 10 cases some major vaginal operations were done.

After admission. for each case a detailed history was taken and full clinical examination and pre-operative investigations were done. Special care was taken to elicit any past history of urinary infection, kidney diseases and chronic wasting diseases which might have reasonable influence over kidney. Past history of surgical interference, if any, and nature of recovery were noted. From the point of view of study the following pre-operative investigative procedures were done: (i) Twenty-four hours' urinary output, (ii) specific gravity of urine from morning specimen, (iii) serum sodium and potassium and (iv) urinary concentration of sodium and potassium from samples of 24 hours' urine collection.

All patients selected for the study did not have any pre-operative evidence of renal impairment and electrolyte balance was normal. No emergency case was included. During operation, blood loss (approximate), infusions and transfusions given were noted. Five per cent dextrose solution and blood whenever necessary were administered during operation.

During postoperative period, along with daily clinical check up, daily total urinary output, specific gravity of urine, serum sodium and potassium and urinary concentration of sodium and potassium were noted up to the 5th post-

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Department of Obstetrics and Gynaecology, R. G. Kar Medical College and Hospital, Calcutta

*M.B.B.S., D.G.O., D.M.C.W., M.S. (Obstetrics and Gynaecology), Registrar

**M.B.B.S., D.G O., M.O., Assistant Professor

operative day. All cases had uneventful postoperative state.

OBSERVATIONS AND DISCUSSION

The gynaecological disorders for which surgery was indicated in 40 cases are shown in Table 1.

Table 1—*Showing Indications of Operation*

Major abdominal operations		Major vaginal operations		Minor operations	
Fibroid uterus	5	Procidentia	3	Primary infertility	3
Cancer cervix stage II parametrium	1	Cystocele + rectocele	4	Secondary infertility	1
Dysfunctional uterine haemorrhage	2	Second degree uterine prolapse	1	Erosion cervix	7
Stress incontinence of urine	1	Rectocele + erosion cervix	2	Dysmenorrhoea	1
Primary infertility	1			Endometrial polyp	2
				Dysfunctional uterine haemorrhage	1
				Menorrhagia	2
				Missed abortion	1
				Chronic cervictitis	1
				Stricture urethra	1
Total	10		10		20

Table 2 shows different types of surgical procedures adopted in the series.

Blood loss and handling of the tissue were average for the type of operation done and no complications arose during operative procedures.

Table 3 shows results of biochemical investigations and examination of urine.

Oliguria was a common finding following surgical trauma. On the first postoperative day all cases showed oliguria, the degree of which depended on the intensity of trauma. Minor group did not show much oliguria. Wynn (1966) opined that neurohormonal stimulus to the 3rd ventricle caused stimulation of the anterior pituitary leading to secretion of the adrenocorticotrophic hormones and thus controlling the urinary output in postoperative patients. This resulted in increased output of hydrocortisone. There was also increased secretion of aldosterone from the adrenal cortex in response to a fall of blood pressure or a decreased circulatory blood volume. Any trauma also produces a release of antidiuretic hormone from the neuroepiphysis. Overall results were water and sodium retention. When the magnitude of trauma was less, metabolic response to trauma was also less as shown in the findings of the minor operations' group.

Table 2—*Showing Different Types of Surgical Procedures*

Major abdominal operations		Major vaginal operations		Minor operations	
Salpingolysis + ovarian resection + Gilliams operation	1	Wardmayo's operation	2	D & C	6
				D & I	1
Abdominal myomectomy	4	Wardmayo's hysterectomy + left-sided salpingo-oophorectomy	1	D, I & C	3
Wertheim's operation	1			D & C + removal of endometrial polyp	1
Marshall Marchetti-operation	1	Fothergill's operation	2	D & C + cervical biopsy + cauterisation of cervix	2
Total hysterectomy + right-sided salpingo-oophorectomy	1	Anterior colporrhaphy + colpoperineorrhaphy	2	D & C + cervical biopsy	1
Total hysterectomy	1	Pelvic floor repair with vaginal ligation of tubes	1	D & C + cauterisation of cervix	4
Total hysterectomy + bilateral salpingo-oophorectomy	1	D & C + cauterisation of cervix + colpoperineorrhapy	2	Cervical biopsy + cauterisation of cervix	1
				Examination under anaesthesia + dilatation of urethra	1
Total	10		10		20

Rise of specific gravity of urine in the postoperative period is a well established finding (Walter and Israel, 1967 ; Howkins, 1968) and the findings of the present series corroborated the same. It also gave information about renal function as urine was concentrated in the renal tubules.

Most of the sodium in the blood is extracellular and serum sodium estimation along with urinary sodium are sufficient for the postoperative follow-up. In the present study serum sodium and urinary excretion of sodium both fell from normal levels markedly in the immediate postoperative period for all cases which gradually attained the pre-operative levels within 5-6 days. It corroborated the findings of Moore (1953), Bourne and William (1962), Wynn (*loc. cit.*) and Jamieson and Kay (1965).

In the present series, during the postoperative period there was very slight rise of blood potassium particularly in the cases of major operations' group, but urinary potassium excretion was markedly increased during the 1st and 2nd postoperative days in all groups which gradually reduced in the successive days. The urinary excretion of potassium in Wertheim's operation indicated the mutilating, marked trau-

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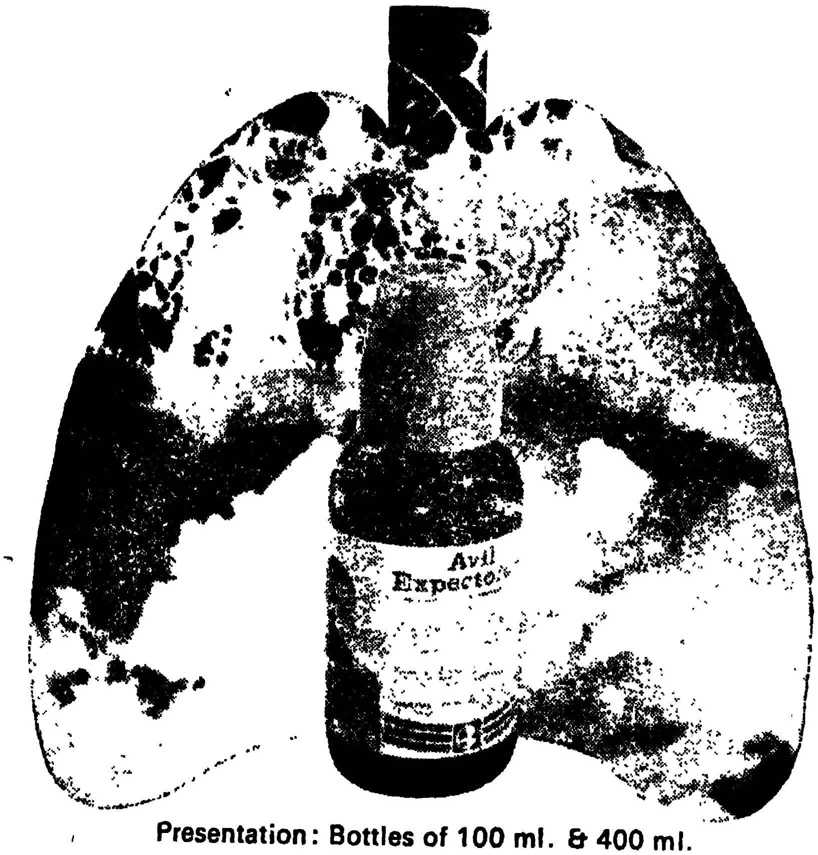

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Table 3—*Showing Mean Pre-and Postoperative Electrolytes, Specfic Gravity and Volume (ml.) of Urine in the 40 Operated Cases*

Investigation	Operations	Pre-operative	Postoperative				
			1st day	2nd day	3rd day	4th day	5th day
Urinary output (ml. in 24 hours	Major abdominal	1555	798	1052	1365	1459	1573
	Major vaginal	1564	819	998	1379	1501	1621
	Minor	1530	1331	1471	1543	1540	1542
Specific gravity of urine	Major abdominal	1008.2	1017.6	1014.6	1011	1007.8	1008.6
	Major vaginal	1008.4	1015.2	1017.4	1011.8	1009	1008
	Minor	1007.8	1011.4	1010.4	1008.9	1008.4	1007.5
Serum Sodium (mEq./l.)	Major abdominal	142.6	134.4	137.7	137.9	138.7	140.8
	Major vaginal	141.8	134.6	138.1	138.2	138	141
	Minor	142.2	136.5	138.3	138.3	140.2	142
Serum potassium (mEq./l.)	Major abdominal	4.15	4.34	4.21	4.15	4.4	4.1
	Major vaginal	4.14	4.32	4.2	4.14	4.12	4.13
	Minor	4.14	4.17	4.15	4.15	4.14	4.13
Total daily urinary sodium (mEq.)	Major abdominal	75	36.9	41.1	56.8	58.9	77.5
	Major vaginal	76.5	37.9	42	58.7	59	77.9
	Minor	84.9	51.1	67.7	84.7	85	85
Total daily urinary potassium (mEq.)	Major abdominal	30.9	57.4	42.5	36	32.8	30.8
	Major vaginal	29.8	56.6	40.5	35	31	32.6
	Minor	30	51.8	33.6	27.4	27	28.2

matic nature of the operation ; in this case daily potassium excretion was high which was sustained for a longer postoperative period ; the preoperative level was 26 mEq. On the 1st, 2nd, 3rd, 4th and 5th postoperative days the levels were 68, 75, 60, 49 and 58 mEq. respectively.

Pre-operative total urinary potassium output for all cases was on the lower side of the normal level.

SUMMARY AND CONCLUSION

Forty indoor patients from the Gynaecological Ward were selected and studied. Among them in 10 cases some types of major abdominal operations, in another 10 cases major vaginal operations and in the remaining 20 cases some minor surgical operations were done.

In all cases besides thorough clinical examinations and routine investigations, 24 hours' urinary output, specific gravity of urine, and estimation of serum sodium and potassium and urinary sodium and potassium concentrations were done. The above tests were also carried out daily for the first 5 postoperative days.

For all cases pre-operative water and electrolyte balance were normal and no complications arose during operation or in the postoperative period.

In the immediate postoperative period retention of water in the body occurred with oliguria and high specific gravity of the urine. In the successive days urinary output increased with lowering of specific gravity.

In the immediate postoperative period plasma sodium level dropped with decrease in total urinary sodium output. In the subsequent days blood sodium level was gradually raised and there was also rise of urinary sodium output which gradually gained pre-operative levels round about the 5th postoperative day.

Serum potassium level might have been normal or slightly elevated but total urinary potassium excretion was markedly increased on the 1st postoperative day which came down to more or less the pre-operative level within 4-5 days.

Studies on these patterns of metabolic changes will dictate the treatment and follow-up of the patients with normal and abnormal fluid and electrolyte balance in the postoperative period following gynaecological operations.

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PRACTITIONERS' SERIES

Primary Amenorrhoea

(Clinical Evaluation of Aetiological Factors)

B. N. CHAKRAVARTY*

Amenorrhoea is essentially an outstanding symptom of some local, genetic, endocrinal or constitutional disorders. These disorders, basically responsible for primary amenorrhoea, have almost always some specific clinical manifestations. With few exceptions, these physical signs are so apparent that the clinical diagnosis of the aetiological factors of primary amenorrhoea does not seem to be very difficult. Laboratory tests are undoubtedly helpful for corroboration of the clinical diagnosis. But on practical considerations, detailed investigations like endocrinal and chromosomal studies can perhaps be limited only to the doubtful cases where clinical diagnosis remains disputed.

The purpose of the present communication, therefore, is to emphasise the importance of clinical parameters by which the probable aetiological factors of primary amenorrhoea can be determined. The scope and limitation of the clinical evaluation were assessed by a few laboratory investigations and in selected cases by laparotomy findings.

CLINICAL ASPECT

The present study is based on the review of 127 cases of primary amenorrhoea who attended the Gynaecological Outpatients Department of Nilratan Sircar Medical College and Hospital, Calcutta, during the period January, 1974 to May, 1977. Cases of physiological amenorrhoea and cryptomenorrhoea due to imperforate hymen were excluded from the present study. The minimum age of the patient at first visit was 13 years and the maximum 38. Relevant facts in the history were noted and thorough clinical examination was made in each case. In adolescent young girls when clinical examination did not reveal any apparent abnormality, special investigations were delayed till the age of 16. Cases where amenorrhoea was induced by operation, radiation and medication were not included in the present study.

The basic lesions responsible for primary amenorrhoea in 127 cases reviewed in the present series have been classfied groupwise and illustrated in Table 1.

Table 1—*Showing Gross Pathological Lesions in Primary Amenorrhoea*

Pathological lesions with diagnosis	No. of cases	
Developmental defect of the genital tract		83
Complete absence of the vagina with absence of functioning uterus	71	
Partial absence of or transverse septum in the vagina with partially or normally functioning uterus (haematocolpos with haematometra)	12	
Abnormal chromosomal pattern		30
Testicular feminisation	7	
Gonadal dysgenesis	23	
(Pure gonadal dysgenesis—14)		
(Mosaic gonadal dysgenesis—9)		
Absence of co-ordinated function of hypothalamic-pituitary-ovarian axis		9
Hypogonadotrophic hypogonadism	4	
Stein-Leventhal syndrome	2	
Delayed puberty	2	
Primary ovarian failure	1	
Dysfunction of thyroid and adrenal cortex		2
Cretinism	1	
Adrenogenital syndrome	1	
Metabolic disorders		3
Juvenile diabetes	1	
Uterine synechiae (tuberculous)	2	

HISTORY:

Age at first visit—It has been observed in the present study (Table 2), that 56 cases came for treatment of amenorrhoea above the age of 20. They, however, sought medical relief at an earlier age yet they could not get proper advice because the basic actiopathological factor was not precisely appreciated by the medical attendant.

Table 2—*Showing Age at First Visit*

	Age in years			
	Below 16	16-20	21-25	Above 25
Number of cases	17 (13.3%)	54 (42.5%)	42 (33.1%)	14 (11.1%)

Heredity—Certain types of primary amenorrhoea are heredofamilial in nature. For example, in delayed menarche, there may be similar history of late onset of menstruation in other members of the family. Testicular feminisation

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Department of Obstetrics and Gynaecology, Nilratan Sircar Medical College, Calcutta
*M.O (Cal.), F.R.C.O.G. (Lond.), Reader

syndrome is often found in multiple sibs of the same family and their maternal aunts (Philip and Trolle, 1965). Two of the 7 cases reported here had similar history. They were aged 28 and 32 years and were phenotypically females; the gonads were testes, karyotype 46, XY. Familial link appears to be unusual in cases of gonadal dysgenesis. However, 2 families have been recorded in the present series where sisters were effected by this genetic disorder, mosaic gonadal dysgenesis.

History of medical diseases—Genital tuberculosis usually presents with secondary amenorrhoea but primary amenorrhoea, particularly in our country, is not uncommon (Deshpande *et al.*, 1966; Paranjothy, 1966; Asolkar and Sutaria, 1966; Bhargava and Madan, 1969). Two cases in the present series had uterine synechiae consequent to genital tuberculosis and one of them has been reported in an earlier communication (Chakravarty, 1977). Tuberculous intra-uterine adhesions leading to amenorrhoea have also been reported by Polishuk *et al.* (1962). The cases in the present series could be diagnosed only by hysterogram and no positive history of primary infection could be elicited.

Diabetes is not a common cause of amenorrhoea. One case of juvenile diabetes has been recorded in the present series and the diagnosis was established during routine investigation of amenorrhoea. Amenorrhoea in such cases is due to the effect of insulin deficiency on the hypothalamic-pituitary-ovarian axis (Friedrich and Davis, 1975). Such type of amenorrhoea is usually associated with hypogonadism. Family history is significant for the diagnosis but biochemical test is certainly essential for confirmation.

Other features—Abnormal gain or loss of weight are suggestive of some endocrinal or metabolic disorder. Periodic lower abdominal pain with or without dysuria indicates the possibility of haematocolpos due to imperforate hymen or vagina septum. History of hormone treatment during intra-uterine life and abnormalities of early development may be helpful for the diagnosis of the aetiological basis of some form of intersexual disorders.

GENERAL EXAMINATION:

General appearance of the patient presenting with the symptom of primary amenorrhoea offers quite a substantial clue for the presumptive diagnosis of the aetiopathological basis. The mere presence or absence of secondary sex characters with or without features of apparent endocrinopathy is very much informative. The approach to clinical diagnosis based on these observations has been shown in Table 3.

Table 3—*Showing Diagnosis Based on the Findings of General Examination*

Findings of general examination with diagnosis		No. of cases
Secondary sex characters normal with normal distribution of sexual hair		85
Developmental defect of genital tract	83	
Uterine synechiae	2	
Secondary sex characters normal with scanty sexual hairs (testicular feminisation syndrome)		7
Secondary sex characters poorly developed with scanty sexual hairs		16
Mosaic gonadal dysgenesis	9	
Delayed puberty	2	
Hypogonadotrophic hypogonadism	4	
Juvenile diabetes	1	
Secondary sex characters absent including absent sexual hairs		15
Pure gonadal dysgenesis	14	
Primary ovarian failure	1	
Other specific features of endocrinopathy e.g., hirsutism, obesity, abnormalities of height and span, mental retardation, etc.		4
Polycystic ovary	2	
Cretinism	1	
Adrenogenital syndrome	1	

Secondary sex characters- Primary amenorrhoea presenting with normal secondary sex characters could be due to either genital tract defect or uterine synechiae. Rarely such conditions exist with abnormal chromosomal pattern like testicular feminisation syndrome. Moderately developed secondary sex character is observed in mosaic variety of gonadal dysgenesis and delayed puberty. In hypogonadotrophic hypogonadism, the secondary sex characters are usually normal and occasionally poorly developed. Secondary sex characters are invariably absent in gonadal dysgenesis, pituitary dwarfism, congenital thyroid hypoplasia (cretinism) and primary ovarian failure (enuchoid hypogonadism). It is often difficult to differentiate these conditions clinically but evaluation of stature of the patient may offer some useful information for the differential diagnosis.

Stature—In primary amenorrhoea the stature may be short in gonadal dysgenesis, pituitary dwarfism and cretinism. Gonadal dysgenesis, as reported by different authors (Jagiello *et al.*, 1966; Evans, 1971) is responsible for primary amenorrhoea in 20 to 44 per cent of cases. There are many physical signs of Turner's syndrome but 2 of them are considered classical. These are short stature and absence of secondary sex characters.

In hypopituitarism, the growth may be either stunted or normal. Hypopituitarism leading to amenorrhoea may be of 2 types. In one variety (panhypopituitarism) all the trophic hormones of the pituitary are deficient and, therefore, in addition to amenorrhoea the patient will suffer from lack of all other trophic hormones. In the other variety of hypopituitarism (selective) it is the gonadotrophic hormone which is deficient and, therefore, except amenorrhoea there are no other evidence indicative of pituitary dysfunction. It seems strange that even in this type of hypogonadotrophic hypogonadism, although there is amenorrhoea, the secondary sex characters remain normal. It is known (Nikitovitch-Winer, 1975) that pituitary gonadotrophic hormone is released in response to LH releasing factor from hypothalamus not only acutely but also chronically in tonic amounts that maintain the basal function of their target organs. For example, LH is not only massively released preceding ovulation, but also it is secreted in basal amounts throughout the cycle. In pituitary hypogonadism, it is unlikely that both massive and tonic secretions fail. On the other hand, it is the massive secretion which may be absent leading to amenorrhoea but the tonic secretion continues leading to normal growth and development of the secondary sex characters. In clinical practice, examples of panhypopituitarism is rare, while selective hypopituitarism is more common. Four cases of the present series had primary amenorrhoea due to hypogonadotrophic hypogonadism (selective). They had normal secondary sex characters with average height.

Besides Turner's syndrome and pituitary dwarfism, the stature may be short in amenorrhoea due to thyroid dysfunction. New (1964) has pointed out that thyroid hormone seems to be the most important factor for growth stimulation during infancy. Mental retardation in addition to stunted growth, amenorrhoea and hypogonadism are characteristic of thyroid hypoplasia. A case of cretin has been recorded in the present study.

Very exceptionally with absent or poorly developed secondary sex cheracters the subject may be of normal height. These features may be present in mosaic gonadal dysgenesis and in primary ovarian failure. In primary ovarian failure the lower part of the body (below the symphysis) is longer than the upper half and the span is equal or even more than the height. Such features do not exist in mosaic gonadal dysgenesis. Primary ovarian failure may be due to prepubertal infection (viral or bacterial) or due to genetic disorder (Kinch *et al.*, 1965 ; Philip *et al.*, 1965).

Obesity and hirsutism—Obesity is not an uncommon association of amenorrhoea. This is more commonly associated with secondary amenorrhoea. The cause of obesity may be present in the pituitary, adrenal cortex or ovary. Pituitary obesity (adiposogenital dystrophy) is restricted to the area of mammary glands, pelvic girdle and mons pubis (Israel, 1967). In primary amenorrhoea obesity due to adrenecortical dysfunction can be reasonably ruled out because this is a feature of Cushing's syndrome which is responsible for secondary amenorrhoea.

Obesity may be the least common feature in Stein-Leventhal syndrome and when present is of moderate degree. The uniform distribution of fat in Stein-Leventhal syndrome differentiates this condition from obesity due to other causes. In addition to obesity there is hirsutism. Two cases of the present series belonged to this group (Table 1). Huffman (1976) has reported polycystic ovary syndrome causing amenorrhoea and hirsutism in a young girl aged 12 who had only one period at the age of 11 years. Vasistha and Aggarwal (1977) have reported primary amenorrhoea in 2 cases due to prepubertal polycystic ovaries.

Other features—Other physical abnormalities associated with primary amenorrhoea like shortness of 4th metacarpal or metatarsal, webbing of the neck, shield chest, eye defects and cubitus valgus are occasional features of one specific syndrome known as gonadal dysgenesis (Turner's syndrome).

EXAMINATION OF EXTERNAL GENITALIA:

Table 4 shows the abnormalities of external genitalia and Table 5 maldevelopment of vagina.

Table 4—*Showing Abnormalities of the External Genitalia (36 Cases)*

Types of abnormalities	No. of cases
Enlargement of phallus	2
Scanty pubic hair	29
Labial fusion appearing like under-developed scrotum	1
Ectopic gonads	4

Table 5—*Showing Maldevelopment of the Vagina (90 Cases)*

Types of maldevelopment	No. of cases
Complete absence	71
Partial absence or transverse septum	12
'Short blind' vagina	7

Enlargement of phallus — These patients usually come with the problem of ambiguous sex rather than with the symptom of primary amenorrhoea. Though differential diagnosis has to be confirmed by examination of buccal smear for sex chromatin and biopsy of the gonad, yet there are certain clinical points by which the probable diagnosis in these cases can be reasonably ascertained. Enlargement of the phallus with primary amenorrhoea is found in association with female intersex (adrenogenital syndrome), male intersex (undermasculinised male) or with hermaphroditism. The urethra usually opens on the perineum but may be prolonged along the ventral surface of the phallus giving the appearance of hypospadiac penis. The scrotum will either look normal or like fused labia (Dewhurst and Ronald, 1969). With these findings of the external genitalia if even one gonad is palpable externally, the possibility of female intersex can be easily ruled out and the individual is perhaps a hermaphrodite or male intersex. If on the other hand, the gonads are not palpable externally and the scrotum looks like fused labia, in majority of cases, the most certain diagnosis would be a female intersex, i.e., adrenogenital syndrome (Fig. 1). Rarely, enlarged phallus may be observed in some cases of incomplete variety of testicular feminisation (Philip and Trolle, *loc. cit.*; Wilson, 1974). However, in testicular feminisation syndrome, the labial fusion is absent, vagina though 'short and blind' is present and ectopic gonad or gonads may be palpable externally. One such case has been recorded in the present series.

Fig. 1—Showing Enlarged Phallus and Fused Labia with Coarse Pubic Hairs in a Girl Aged 13 Years with Adrenogenital Syndrome

Lastly enlarged phallus may be observed in association with some hormone producing tumours of the ovary, e.g., arrhenoblastoma. In these cases secondary rather than primary amenorrhoea is common. Dysgerminoma may occasionally be associated with enlarged clitoris and other features of virilisation (Novak and Woodruff, 1967). Absence of other abnormalities of external or internal genitalia and presence of extra-uterine pelvic lump will indicate the possible existence of an ovarian tumour.

Presence of ectopic gonads—Whenever a gonad is palpated externally in an otherwise phenotypical female (Fig. 2) with a normal or short blind vagina, the diagnosis of testicular feminisation syndrome can be reasonably established. Well developed breasts with externally palpable gonad may be present in true hermaphrodites but presence of modified external genitalia indicating an ambiguous sex, differentiates this condition from pure testicular feminisation syndrome.

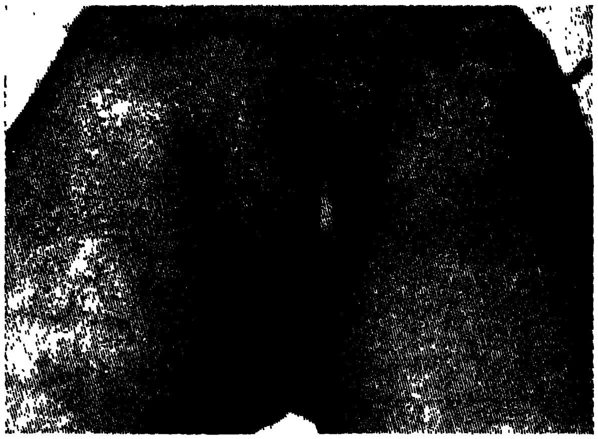

Fig. 2—Showing Gonad (Testis) in Labia Majora (Testicular Feminisation Syndrome)

Pubic hair—Scanty pubic hair may be observed in hypopituitarism, primary ovarian failure (eunuchoid hypogonadism), gonadal dysgenesis and in testicular feminisation syndrome. In testicular feminisation syndrome, the secondary sex characters are normal but the uterus is absent, whereas in all other conditions, the secondary sex characters are absent and the uterus though small, is invariably present.

Maldevelopment of the vagina—A definite correlation almost always exists between the degree of maldevelopment of the vagina and the nature of abnormalities found in the internal pelvic organs. With partial agenesis of or transverse septum in the vagina the presence of a partially or normally functioning uterus is the rule (haematocolpos or haematometra), whereas in complete agenesis simultaneous absence of a functioning uterus has been noted in all the cases reviewed in the present series.

EXAMINATION OF PELVIC ORGANS:

Examination of the pelvic organs were carried out by the rectal route and the relevant findings are shown in Table 6.

Table 6—*Showing the Findings on Palpation of the Internal Pelvic Organs (Rectal Examination under Anaesthesia)*

Findings	No. of cases
Uterus absent	78
Rudimentary or hypoplastic uterus	33
Normal sized uterus	4
Size of the uterus could not be properly assessed because of haematocolpos or haematometra	12
Adnexal lump	2

Uterus absent— When the vagina is present the possible diagnosis is testicular feminisation. Presence of vagina indicates a reasonable depth of the organ not created artificially by sexual intercourse. Such type of artificially created vagina without the uterus with well developed secondary sex characters may be found in association with muellerian dysgenesis (Chakravarty *et al.*, 1976).

Uterus rudimentary or hypoplastic—In these cases the vagina is usually well developed but the oestrogenic effect on the vagina (resilience and rugosity) is absent or poor. Such conditions may be due to gonadal dysgenesis, primary ovarian failure, hypogonadotrophic hypogonadism, delayed menarche and amenorrhoea due to metabolic disorders. In gonadal dysgenesis and primary ovarian failure the secondary sex characters are absent, whereas in hypogonadotrophic hypogonadism the secondary sex characters may be normal. The differential diagnosis may not be, however, so simple because in some cases of mosaic gonadal dysgenesis the secondary sex charcters may be well developed, whereas in hypogonadotrophic hypogonadism the secondary sex characters may be poor. The diagnosis is established by karyotyping and estimation of pituitary gonadotrophins. Delayed menarche is a retrospective diagnosis. The diagnosis of metabolic disorder has to be established by specific laboratory tests.

Uterus normal in size—The uterus is normal in size in Stein Leventhal syndrome and in uterine synechiae. In some cases of congenitally maldeveloped vagina (partial agenesis or transverse septum), the uterus appears to be enlarged. It is not possible to ascertain the size of the uterus precisely in these cases because of associated haematocolpos and haematometra. Uterine malformation is a common finding with this type of vaginal maldevelopment.

In the phenotypical female with normal sized vagina and with the presence of a uterus (small or normal sized), further investigations are delayed till the age of 16. As an initial step, an attempt is made to induce withdrawal bleeding by a combination of oestrogen and progesterone. If there is a positive response, the presumptive diagnosis should be delayed menarche or hypogonadotrophic hypogonadism. If the patient does not respond then the differential diagnosis rests between uterine synechiae and the rare condition of congenitally unresponsive endometrium (Israel, *loc. cit.*).

Adnexal lump—Bilateral polycystic ovary was found to be responsible for primary amenorrhoea in 2 cases only (Table 3). Polycystic ovary syndrome is usually associated with oligomenorrhoea and secondary amenorrhoea.

The comprehensive clinical approach outlined above was found useful for establishing the diagnosis of the aetiological factors of primary amenorrhoea in 109 out of 127 cases reviewed. Few laboratory tests were performed to corroborate the clinical diagnosis. In the remaining 18 cases, the exact aetiopathology remained inconclusive till the reports of the special investigations were available. Tables 7 and 8 illustrate the types of cases which could or could not be diagnosed by clinical examination alone.

Table 7—*Showing the Diagnosis Based on Clinical Examination*

Diagnosis	No. of cases
Genital tract defect	83
Testicular feminisation syndrome	6
Pure gonadal dysgenesis	14
Stein-Leventhal syndrome	2
Cretinism	1
Adrenogenital syndrome	1
Delayed puberty	2

Table 8—*Showing the Diagnosis Based on the Report of Investigations*

Diagnosis	No. of cases
Incomplete variety of testicular feminisation syndrome	1
Mosaic gonadal dysgenesis	9
Primary ovarian failure	1
Hypogonadotrophic hypogonadism	4
Juvenile diabetes	1
Uterine synechiae (tuberculous)	2

SPECIAL INVESTIGATIONS:

Groups of clinical data formed the basis on which special investigations were planned. Majority of these investigations were performed for corroboration of the clinical diagnosis. A few however, were found absolutely essential for the differential diagnosis.

Secondary sex characters normal with developmental defect of the vagina and muellerian ducts—Examination of buccal smear for nuclear chromatin was done in each case and all were found chromatin positive. It is not essential to do karyotype in these cases though Hauser (1976) has reported evidence of banding anomaly of 'X' chromosome in some of this specific syndrome. Intravenous pyelogram should be done as a routine because unilateral urinary tract abnormalities are not uncommon with muellerian dysgeneis. Six out of 71 cases of muellerian dysgeneis (7.1 per cent) in the present series showed this type of abnormality. Pelvic pneumogram and laparoscopic examinations are helpful investigations. Laparotomy in the present study, has been found more useful for corroboration of the diagnosis as well as to obtain biopsy from the gonads and rudimentary mullellerian knobs.

Secondary sex characters normal with 'short blind' vagina and absent uterus—Buccal smear is essential and this was negative for chromatin in 7 cases recorded in the present series. Further karyotyping is unnecessary. Laparoscopy or laparotomy followed by gonadal biopsy helps to clinch the diagnosis of testicular feminisation.

Secondary sex characters normal or moderately developed with normal vagina and hypoplastic or normal sized uterus—Such situations exist with either hypogonadotrophic hypogonadism (selective), uterine synechiae, delayed puberty or very rarely in amenorrhoea with unresponsive endometrium. Occasionally these clinical features are found in association with mosaic gonadal dysgenesis. Simple examination of buccal smear is not enough. Detailed karyotyping is essential which will show mosaicism (45.XO/46.XX). Vaginal cytology will reveal normal oestrogenic response in uterine synechiae, whereas in hypogonadotrophic hypogonadism and in delayed puberty the response will be poor. Estimation of serum or urinary gonadotrophins will establish the diagnosis of hypogonadotrophic hypogonadism. Hysterogram is essential for confirmation of the diagnosis of uterine synechiae. Because uterine synechiae are mostly tuberculous in origin, x-ray chest and blood for ESR are suggested as routine procedures but they are seldom helpful. Diagnostic endomentrial curettage is indicated when genital tuberculosis is suspected but this is seldom diagnostic when intra-uterine adhesion has already developed.

Secondary sex characters absent with normal vagina and small uterus—Gonadal dysgenesis. primary ovarian failure or panhypopituitarism are the probable diagnosis. These clinical features may also exist in gross hypothyroidism (cretinism) and juvenile diabetes. Specific investigations for thyroid function and carbohydrate metabolism will chtablish the diagnosis of these medical disorders. Study of buccal smear will establish or rule out the possibility of gonadal dysgenesis. Estimation of urinary gonadotrophins will differentiate primary ovarian failure from panhypopituitarism. In a few selected cases x-ray of sella turcica and visual field examination are indicated to rule out the possibility of any neoplasm of the pituitary.

Variable development of secondary sex characters with abnormalities of external genitalia suggestive of ambiguous sex—Adrenogenital syndrome. male intersex or true hermaphroditism are the probable aetiological factors of such abnormalities. The commonest condition of course is adrenogenital syndrome (female intersex). Examination of buccal smear and detailed karyotyping are definitely indicated. Elevated level or urinary excretion of 17-ketosteroids will establish the diagnosis of adrenogenital syndrome. Perirenal pneumogram. laparoscopy or laparotomy followed by gonadal biopsy will help to establish the diagnosis.

Secondary sex characters normal with evidences of hirsutism—This specific feature is seen in polycystic ovary syndrome. Gynaecography. culdoscopy or laparoscopy are essential aids for the diagnosis of polycystic ovary syndrome. There may be modest elevation of urinary 17-ketosteroids.

SUMMARY

One hundred and twenty-seven cases of primary amenorrhoea have been reported. The aetiopathological basis of primary amenorrhoea was primarily assessed on clinical parameters. By clinical estimation at least. it was possible to determine whether the pathological condition responsible for primary amenorrhoea was remediable or irremediable. Stature of the patient. span in relation to height. presence or absence of secondary sex characters, hirsutism. externally palpable gonads. abnormalities of the external genitalia. maldevelopment of the vagina. psesence or absence of the uterus with or without adnexal lump were the key points on which the clinical diagnosis of the aetiological factor of primary amenorrhoea could be established. By compilation of these clinical findings it was possible to arrive at a correct clinical diagnosis in 109 out of 127 cases (85.1 per cent) reviewed. In the remaining 18 cases. the clinical features were conflicting and hence correct clinical diagnosis could not be made. Examination under anaesthesia. study of buccal smear for sex chromatin. vaginal cytology and attempt to induce withdrawal bleeding by combination of oestrogen and progesterone were found useful as primary screening procedures. With few exceptions, the ancillary laboratory tests used were readily available, inexpensive and within the capability of most laboratories.

ACKNOWLEDGMENT

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CASE NOTES

1

Myopericarditis following Chikungunya Virus Infection

C. R. MAITI*, A. K. MUKHERJEE**
B. BOSE***, G. L. SAHA****

Viruses have been known to cause myopericarditis along with involvement of other structures (Wolstenholme and O'Connor, 1964). Viruses such as Coxsackie type B, ECHO, influenza viruses, etc., are said to be responsible for such involvement.

In the present case there were symptoms and signs of cardiac involvement from the first day of viral infection which was later confirmed serologically as an infection by chikungunya virus.

CASE REPORT

M. L. S., a Hindu male, 27 years, businessman by occupation, had malaise and slight fever followed by retrosternal pain, palpitation, weakness, shortness of breath, pain on the lower part of left side of chest early in the morning on 4-3-1976. The retrosternal pain increased on lying or on leaning forward or on swallowing of food or drinks; the left sided chest pain was also aggravated on deep inspiration. Fever and malaise lasted for about 3 days. Palpitation, weakness and dyspnoea persisted after 3 days.

Examination—On examination, the patient looked ill, pulse rate—120/minute, regular, BP—115/85 mm. Hg, prominent pulsatile neck veins, liver was enlarged up to 2 fingers' breadth below the costal margin and was soft and tender, slight pitting oedema of legs and feet, apex beat was in 5th left intercostal space ½" outside the left midclavicular line and was feeble in

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M D. (Cal.), F.R.C.P. (Glass.), D.T.M. (Cal.), F.I.C.A., Reader, Department of Medicine and Head of the Cardiology Unit, Medical College Hospitals, Calcutta

**M.B.B.S. (Cal.), Postgraduate Student, University College of Medicine, Calcutta

***M.B.B.S. (Cal.), Senior House Physician, Department of Medicine, Medical College Hospitals, Calcutta

****M.B.B.S. (Cal.), Senior House Physician (W.B.H.S.), Department of Medicine (Cardiology), Medical College Hospitals, Calcutta

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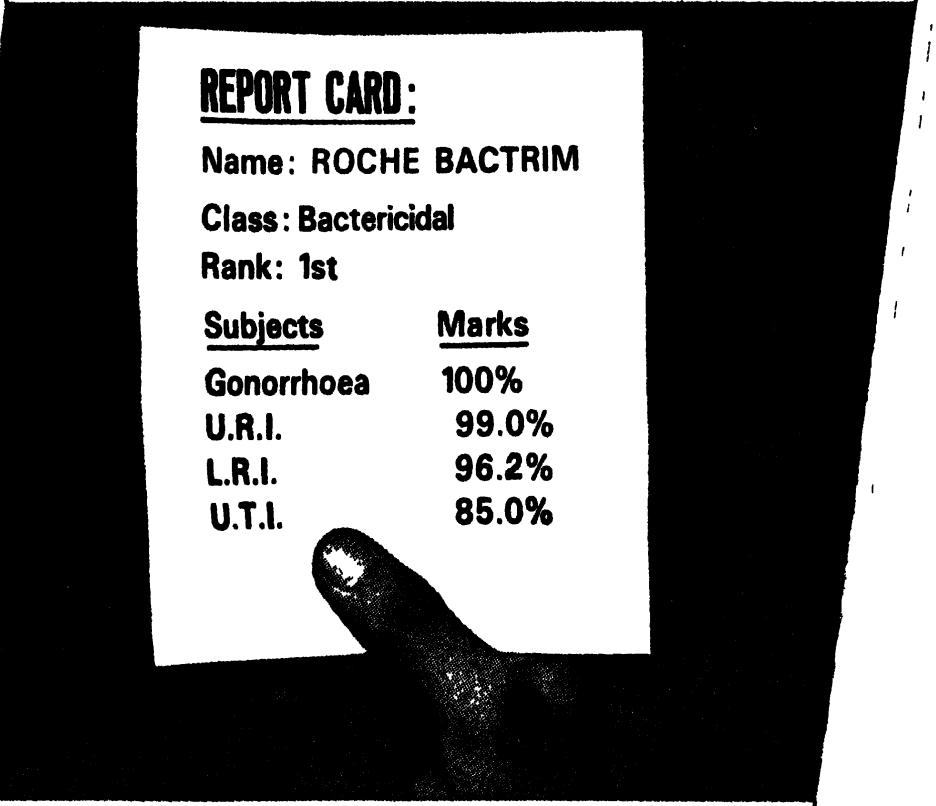

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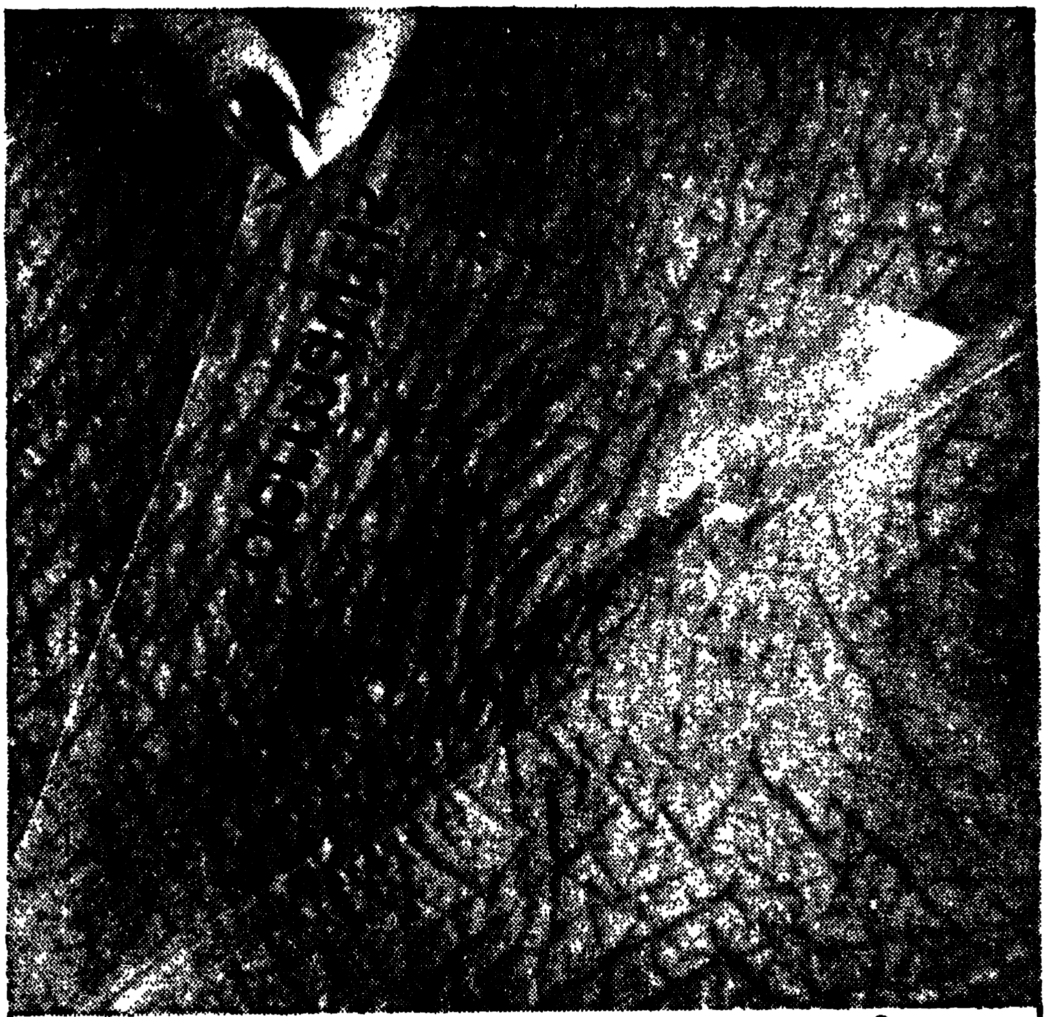

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character, gallop rhythm was evident with crepitations over lower zones of both lungs.

***Investigations*—X-ray of chest done on 6-3-1976 showed moderate enlargement of cardiac silhouette.**

A blood count done on 5-3-1976 showed WBC count of 16,500/c.mm. with polymorphs—60 per cent, lymphocytes—40 per cent. Haemoglobin—75 per cent (Sahli) and ESR was 24 mm./1st hour.

Management—The patient was treated with digoxin (0.25 mg.) tablet, one tablet once daily, frusemide (40 mg.) tablet, one tablet once daily and antibiotics (tetracycline hydrochloride 250 mg. four times a day for 8 days) and bed rest. The congestive cardiac failure subsided within 2 weeks.

Progress—The patient was admitted in Medical College Hospitals, Calcutta on 27-3-1976 for further investigations. By this time the patient had no complaints. Clinically, his pulse rate was 72/minute, regular, BP—120/80 mm. Hg. Neck veins were normal, liver was just palpable and not tender and there was no oedema of the extremities. Apex beat was situated in the 5th left intercostal space in the midclavicular line, 1st and 2nd heart sounds were normal and a 3rd heart sound was present over the mitral area, no murmurs were audible.

Investigations—WBC—5000/c.mm. with polymorphs 56 per cent, lymphocytes—40 per cent, monocytes—4 per cent. ESR was 4 mm./1st hour; blood sugar (fasting)—90 mg. per cent, serum cholesterol—155 mg. per cent, blood urea—28 mg. per cent.

Arm to carotid circulation time—8.5 seconds, jugular venous pressure—4 cm. of blood. X-ray chest (3-3-1976) showed normal appearance of heart and lungs. ECG —normal but the oesophageal lead showed ST—T depression with T inversion.

Exercise tolerance test: The patient was asked to stand erect from the squatting position 20 times as quickly as possible and the results were as follows:

Pulse rate before exercise—72/minute, regular; immediately after exercise the pulse rate rose to 110/minute; 2 minutes after exercise the pulse rate was 86/minute, 5 minutes after exercise the pulse rate became 76/minute and 10 minutes after exercise the pulse rate was 72/minute.

The serum haemagglutination inhibition titre against chikungunya virus was 320 suggesting recent chikungunya virus infection. The complement fixation titre of the serum was 32 against chikungunya virus.

DISCUSSION

Chikungunya virus infection was found to be the cause of myocarditis and other manifestations by Thiruvengadam *et al.* (1965) in India. They described 86 authentic cases of chikungunya infection who presented clinically with irregular fever, joint pains, non-articular pains, headache, lymphadenopathy, skin rashes, conjunctival injection, increased bleeding tendency, gastro-intestinal symptoms, etc. They made electrocardiographic observations on 32 cases of which 18 cases had confirmation of chikungunya infection. Out of these 18 cases, only 3 cases had ECG abnormalities such as T wave inversion and depression of T-T segment from V_2 to V_5 leads. However, clinically there were no signs of cardiac involvement in these 3 cases.

The patient under study developed fever, malaise, bodyache, and chest pains, all on a sudden which was later found to be due to a viral infection caused by chikungunya virus. The patient also developed palpitation, dyspnoea and retrosternal pain aggravated by deglutition which were suggestive of myopericarditis. The chest pain on the lower part of chest on left side, aggravated on deep inspiration, appeared to be due to left-sided pleurisy. Engorgement of neck viens, slight pitting oedema of legs and feet, enlargement of liver which was soft and tender, presence of a 3rd heart sound, cardiac enlargement in the skiagram of chest, ST-T wave changes in ECG, and diminished exercise tolerance were suggestive of myopericarditis with congestive cardiac failure.

Haemagglutination inhibition antibodies appear in 6-8 days' time, reach its peak level in 24-25 days, then the titre becomes less and remains steady up to 5 years. The complement fixation test titre is specific, appears in 20-21 days' time, reaches its peak level in 30-32 days' time, remains steady for 2 months and then falls by 2 years (Lennette and Schmidt, 1964).

The serum of the patient showed a very high haemagglutination inhibition titre and a complement fixation titre against chikungunya virus (Chatterjee *et al.*, 1967) which indicated a recent infection with chikungunya virus which caused myopericarditis. In this case, myopericarditis was of short duration and was a reversible process. The patient became absolutely normal after a period of about 3 weeks.

This is a proved case of viral myopericarditis following chikungunya virus infection in India.

SUMMARY

A case of viral myopericarditis due to chikungunya virus infection has been reported. The cardiovascular function of the patient came back to normal within a period of about 3 weeks. The occurrence of viral myopericarditis is not related to the severity of the infection and a relatively mild attack of viral infection may involve the heart causing myopericarditis. This is probably one of the early cases of viral myopericarditis following chikungunya virus infection reported in India.

ACKNOWLEDGMENT

Our grateful thanks are due to Dr. B. K. Chakrabarti, Principal cum Superintendent, Medical College and Hospitals, Calcutta for his kind permission to publish the case and to Dr. J. K. Sarkar, Virology Department, School of Tropical Medicine, Calcutta for his kind assistance in diagnosing the case.

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2

A Giant Parotid Tumour

A. K. BANERJEE*, M. AHMAD**

Tumours of the parotid glands are relatively uncommon, the reported incidence varies from 0.5—2 per cent of all neoplasms (Potdar *et al.*, 1969). But parotid is the commonest site of tumours among all salivary glands. The chief interest in reporting this solitary case of mixed parotid tumour is its enormous size and weight about which scanty literature is available.

CASE REPORT

S. B. D., a 70-year old lady was admitted in the surgical ward of N. R. S. Medical College and Hospital, Calcutta on 18-6-1976 with a huge swelling on the left side of the face for the last 35 years. It was very slowly increasing in size but for the last 6 months it started growing very rapidly until it attained its present dimensions and weight, which was so considerable that the patient could not walk about (Fig. 1). While taking meals, she used to sit up with the help of others supporting the tumour with the left hand.

She had a dragging pain in the swelling, which used to be relieved on lying down. There was an ulceration in the most dependent part of the swelling which started developing about 3 months back. History of foul smelling discharge and occasional bleeding from the ulcer was present. No other significant history could be elicited.

Examination—General physical examination was within normal limits excepting that she had moderate degree of anaemia. Local examination revealed a huge swelling, extending from the left parotid region to the lower limit of the left breast, measuring about 12" × 9" in diameter. It had a variegated feel and nodular surface. It was tender at places. The swelling was firmly attached to the underlying structures (excepting bone) but separated from the lower part of the neck and chest wall which it over hung. An ulcerated area about 4" in diameter was situated in the lower most part of the swelling, which had a seropurulent discharge. Examination of facial nerve did not reveal any abnormality. A few cervical lymph nodes were palpable on the same side, of which submandibular node was firm, fixed and tender.

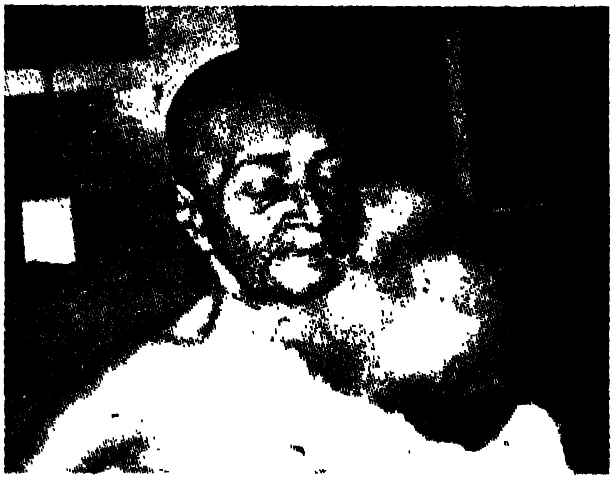

Fig. 1—Showing a Huge Swelling on the Left Side of the Face

With these features a clinical diagnosis of mixed parotid tumour with possibly malignant transformation and metastasis in submandibular lymph node was made though facial nerve was not involved.

Investigations—Routine and biochemical investigations of blood showed no abnormality excepting that haemoglobin level was 9.6 g. per cent. X-ray chest was normal. Culture and sensitivity test of the discharge from the ulcer showed growth of *Esch. coli* and *Ps. pyocyanea*, sensitive to gentamicin only.

Operation—After proper preparation, the patient was operated upon on 28-6-1976 under general anaesthesia (NO_2 and O_2) making a plan to perform a total parotidectomy. As the swelling was enormous in size, a modified classical incision was made encircling the base of the tumour. No attempt was made to save the facial nerve and as such very little difficulty was experienced during its removal. When haemostasis was satisfactory, the wound was closed keeping a few corrugated rubber drains underneath. The tension in the suture line was minimum. One bottle of blood (300 ml.) transfusion was necessary during operation.

Postoperative period was smooth in all respects excepting that she developed a little wound infection which was ultimately controlled by dressing and injectio gentamicin. She was discharged from the hospital on 20-7-1976 in satisfactory condition.

Pathology—The tumour, weighed 4.5 kg. approximately. The specimen was cut longitudinally and a portion from its cut surface was sent for histo-

Department of Surgery, Nilratan Sircar Medical College and Hospital, Calcutta
*M.S. (Delhi), Clinical Tutor
**F.R.C.S. (Edin. and Eng.), Reader and Honorary Visiting Surgeon; and In-charge, Genito-urinary Department, Islamia Hospital, Calcutta

pathological examination. The histological section however, showed the picture of pleomorphic adenoma with no evidence of malignancy.

DISCUSSION

Pleomorphic adenoma is the commonest type of tumour of the salivary glands, of which 90 per cent arise in the parotid gland (Aird, 1958). Primary salivary gland tumours have been an interesting subject both to the surgeons and the pathologists because of its varied clinical behaviour and diverse histological forms. As such vast literatures have been published on this subject. But astonishingly only a few reports are available regarding the giant size that it may attain. In the present case there are 2 important features. One is the long duration (35 years) and other is the giant size of the tumour.

In reviewing the literature it has been found that the rate of growth varies from tumour to tumour and even in the same tumour from time to time. In a few cases of long duration, the size of the tumour has been larger than the patient's head (Aird, *loc. cit.*). The tumour under the present study having the diameter of 12″ × 9″ resembles this and is therefore a rarity.

Street (1913) reported 4 cases of huge parotid tumours, one of which had a duration of 40 years. The biggest one weighed 7 lbs. 3 ozs. which is much less than that in the present case.

Blame (1912) described a parotid tumour in a Chinese woman of 12 years' duration which was bigger than the patient's own head. Histologically none of the tumours reported by Street (*loc. cit.*) and Blame (*loc. cit.*) were mixed parotid tumour (mostly malignant). This unique case of mixed parotid tumour, is published because of its long history, giant size, enormous weight and still maintaining its benign nature.

SUMMARY

An enormous benign mixed parotid tumour has been presented. Literature has been brifly reviewed.

ACKNOWLEDGMENT

We are grateful to Dr. G. C. Mookerjee, Principal cum-Superintendent, Nilratan Sircar Medical College and Hospital, Calcutta for permitting us to report this case. We are also thankful to Dr. R. Talukdar and other members of the unit for their kind cooperation.

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3

Cervical Adenitis due to Atypical Mycobacteria

M. PRASAD*, A. A. KHAN**, S. P. TYAGI***
R. KUMAR****, A. BAL*****

Cervical adenitis is one of the common presenting clinical features of patients attending the hospitals in northern India. Unlike western countries where the incidence of tuberculosis has gone down in the recent past (Wilmot, 1957; Edwards, 1970), in India, tuberculosis still remains to be the commonest cause of cervical lymphadenitis.

In recent years there is increasing interest throughout the world in infection of cervical lymph nodes due to atypical or opportunist mycobacteria (Davis and Comstock, 1961; Black and Chapman, 1964; Salyer *et al.*, 1971). A few reports have also been published from different parts of India (Kulkarni and Frimodt-Moller, 1969; Sarkar *et al.*, 1971; Davsar and Chitkara, 1971).

Two cases of atypical mycobacterial cervical lymphadenitis were detected during a clinicobacteriological and histopathological study of 60 cases of cervical lymphadenopathy attending J. N. Medical College and Hospital during 1971-1972. The present communication deals with the detailed description of these cases

CASE REPORTS

Case 1:

A female patient aged 13 years presented with cervical lymphadenopathy of 2 months' duration. Three submandibular lymph nodes of the left side were enlarged (3-5 cm. in diameter). These were firm, discrete, non-tender and freely mobile.

Investigations—Mantoux test using PPD-RT 23 with Tween 80 was negative (induration 5 mm) and x-ray chest showed no evidence of pleuropulmonary disease.

Histological examination of the lymph node biopsy showed caseation, giant cells and epitheloid cells.

The cultural characteristics were as follows: Time of appearance of growth—5 weeks, eugenic; temperature of growth—25°C, 37°C and 42°C; pigment formation—orange colour in dark and in light; morphology—indistinguishable from human type.

Biochemical tests: Niacin test—negative; arylsulphatase—positive; catalase test—moderately posi-

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Jawaharlal Nehru Medical College, Aligarh Muslim University, Aligarh
*M.D. (Tuberculosis), D.M.R.E., M.D. (Med.), Reader in Tuberculosis and Chest Diseases
**M.D. (Med.), Lecturer in Medicine
***M.D. (Path. and Bact.), Reader in Pathology
****M.D. (Path. and Bact.), Reader in Microbiology
*****M.D. (Path. and Bact.), Professor of Microbiology

tive; nitrate reduction—positive. Drug sensitivity—resistant to PAS, INH and streptomycin.

On the basis of the investigations the atypical mycobacteria were classified as "scotochromogen" (group II of Runyon's classification).

Case 2:

A girl aged 8 years presented with cervical lymphadenopathy of 8 months' duration. She had right-sided submandibular node involvement. Four lymph nodes were enlarged, matted and fixed to form a mass measuring 5 cm. × 5 cm. with a discharging sinus in the same area.

Investigations—Mantoux test using PPD-RT 23 with Tween 80 was negative (induration 5 mm.) and x-ray chest showed no abnormality.

Histological examination of the lymph node biopsy showed reactive follicular hyperplasia.

The cultural characteristics were as follows: Time of appearance of growth—4 weeks, eugenic; temperature of growth—25°C and 37°C, no growth at 42°C; pigment formation—orange colour in dark and in light; morphology—indistinguishable from human type.

Biochemical tests: Niacin test—negative; aryl-sulphatase—positive; catalase test—moderately positive; nitrate reduction—positive. Drug sensitivity—resistant to PAS, INH and streptomycin. On the basis of the investigations the atypical mycobacteria were classified as "scotochromogen" (group II of Runyon's classification).

DISCUSSION

Cervical adenitis due to atypical mycobacteria appears to be common in 1st and 2nd decades of life and females are more often involved. Davis and Comstock (*loc. cit.*), Edwards (*loc. cit.*) and Davsar and Chitkara (*loc. cit.*) reported similar findings. However, von Joost *et al.* (cited by Davsar and Chitkara, *loc. cit.*) found cases in the 3rd and the 4th decades of life. Family history and history of contact with tuberculosis are very rare in these cases (Davis and Comstock, *loc. cit.*; Chapman and Guy, 1959: Salyer *et al.*, *loc. cit.*; Sarkar *et al.*, *loc. cit.*). Unclassified mycobacterial lymphadenitis is generally localised and the submandibular gland is more often affected (Black and Chapman, *loc. cit.*; von Joost *et al.*, cited by Davsar and Chitkara, *loc. cit.*; Salyer *et al.*, *loc. cit.*; Sarkar *et al.*, *loc. cit.*).

Mantoux test shows cross reaction between PPD-S and PPD-atypical mycobacterium (Davis and Comstock, *loc. cit.*; Dajani *et al.*, 1963). Mantoux test with PPD-RT 23 with Tween 80 gave negative result (induration 5 mm.) in the present cases. Evidence of pleuropulmonary involvement is less frequent with atypical cervical lymphadenitis (Dajani *et al. loc. cit.*; Davis and Comstock, *loc. cit.*; Black and Chapman, *loc. cit.*) as had also been noticed in the cases presented.

Histological appearance of the lymph node in atypical mycobacterial lymphadenitis, to some observers (Nassau and Hamilton, 1957: Corpe and Stergus, 1963; Merckx *et al.*, 1964; Salyer *et al.*, *loc. cit.*; Davsar and Chitkara, *loc. cit.*), is indistinguishable from ordinary tuberculous lymphadenitis, whereas others (Pagel, *et al.*, 1964; Reid and Wolinsky, 1969) have described diffuse non-specific changes often indistinguishable from cat-scratch disease, sarcoidosis and other granulomas. In case 1 the picture was of tuberculous granuloma, while reactive follicular hyperplasia was present in case 2.

Bacteriological study by preparing smears and culture of the lymph nodes, along with the biochemical tests, is very helpful in establishing the diagnosis.

The authors are of the view that out of the 2 important diagnostic criteria histopathological examination alone is not able to separate tuberculous and atypical mycobacterial adenitis clearly. Hence bacteriological examination of the cervical lymph node should be carried out wherever possible. It not only confirms the diagnosis but also helps to differentiate between various mycobacteria and demonstrates their sensitivity to various antituberculosis drugs.

SUMMARY

Two cases of atypical mycobacterial cervical lymphadenitis have been described and a review of the literature with comments has been presented.

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Antibiotic Strategy of Urinary Tract Infections

The magnitude of the clinical problems of urinary tract symptoms (dysuria) and infections is gauged to be about 20 per cent of all adult women per year of whom only half as many consult doctors[1]. Of these, about a third (3.3 per cent of total) having classical symptoms of urinary tract infection may have a "sterile" urine[2] (due to acute urethral syndrome or symptomatic abacteriuria) ; the sterile urine characteristic of these states may be due to a variety of microbial incitants which elude cultivation on common bacteriological media and by simple techniques, e.g., viruses, chlamydiae (TRIC agents), PPLO and possibly quite often gonococci[1, 3]. Because of the nature of these agents involved, one could explain not only the absence of bacteriuria or pyuria, but also understand why there will not be a single distinctive clinical pattern for these diverse infective conditions.

The remaining two-thirds of dysuric patients may have significant bacteriuria originating from septic lesions in either the urinary bladder or the renal parenchyma. The importance of this group lies in its size, i.e., number of patients excreting bacteria in their urine, in its genial response to a properly guided chemotherapy and in its potentiality to lead to chronic renal disease, if neglected[1, 4]. Therefore, the crucial factor here is to evolve correct policy of chemotherapy of such infections. The bacteria that are involved in order of decreasing importance are *Esch. coli*, proteus, providencia, *Ps. aeruginosa*, *Staph. aureus* and *Strept. faecalis*[1, 3, 4]. The way in which these bacteria gain access to certain sites in the urinary tract, and establish themselves there, seems to be understood at least in part. Firstly, these are either pushed upwards by the process of catheterisation or a contaminated catheter infects the bladder directly ; alternatively these may reach by a process of upward invasion from the lower reaches of the urethral passage[3]. In the first instance, the introduced bacteria do not arise endogenously (i.e., from the patients themselves), but are 'recruits' of hospital epidemic reserves[5, 6], and commonly multiply-resistant to antibiotics on account of carriage of R plasmids[7]. Other strains may have special invasive properties signalled by their elaboration of certain capsular polysaccharide antigens having distinctive electrophoretic mobility, and their belonging to certain O-serotypes (e.g., 1, 2, 4, 7 and 18)[8-10] which seem to correlate well with other markers for identification[11].

That being so, bacteriuria, not qualified in terms of strain description and location of the urinary tract lesion, as such may not mean much either to the clinician or to the epidemiologist[12]. Thus, bacteriuria of lower urinary tract origin without any obstruction (as in acute pyelonephritis) are mercifully self-limiting[1, 3, 4, 12], easily amenable to antibiotic and other controls and would not relapse and lead to chronic renal disease in the usual run of the mill. Choice of antibiotics may be restricted to only a few out of many, solely determined by their reaction towards the infecting organism and toxicity in the long run. The agents commonly employed are sulphonamides, ampicillin, oxytetracycline, streptomycin, gentamicin, chloramphenicol, nitrofurantoin, mandelamine and carbenicillin, used mostly singly, but also in occasional advantageous combinations (e.g., trimethoprim and sulpha)[1, 4, 12, 13]. In an article published elsewhere in this issue of the journal, Rayan *et al.*[14] have attempted to make a comparative study of *in vitro* sensitivity of various urinary pathogenic bacteria to the six common antibiotics and one chemotherapeutic agent, nitrofurantoin.

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The redeeming prospects of lower urinary tract infections are in gloomy contrast with the bacteriuria of upper regions associated with mechanical obstruction (e.g., in chronic pyelonephritis) which are harder to eradicate and prognostically poorer[1, 12]. Here, antibiotics alone are not wholly sufficient but riddance of the mechanical hindrance coupled with an immunological support seem to be the safest bets for an enduring cure.

This last category seems to be of particular interest and poses a challenge. Here, one can study intricate aspects of host-parasite relationships under the influences of operationally low levels of specific Igs and antibiotics in a natural model[1, 15]. This model which so richly mimicks some of belaboured animal experimental models on obstructive pathology[16-18], deserves much greater attention and exploitation than herebefore.

A. N. CHAKRABARTY

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NOTES AND NEWS

Medical Council of India Invites Nominations for Its Awards

Nominations have been invited by the MCI from Indian nationals only for the following awards:

1. *Medical Council of India—Silver Jubilee Research Award*

The award which is of the value of Rs. 50,000/- in cash and a gold medal will be given for an original and outstanding research work in the field of Medicine and allied sciences done in India.

2. *Dr. B. C. Roy National Awards*

The awards will be given in the following categories:

i) To recognise the merit of a good and capable teacher in any branch of Medicine. ii) To recognise the best talents in encouraging the development of specialities in different branches of Medicine. iii) To recognise the best services in the field of sociomedical relief and in the establishment of medical institutions. iv) To select a person for delivering the Dr. B. C. Roy Oration. v) To give aid or assistance to research projects in medical colleges/medical institutions. vi) To grant fellowship for postgraduate study in Medicine and allied sciences.

The value of each award is Rs. 5,000/- in cash and a medal. The fellowship is @ Rs. 600/- p.m. for two years or the duration of course, whichever is shorter.

3. *Hari Om Ashram Alembic Research Award*

The award will be given in the following categories:

A. Research in Basic Medical Sciences. B. (i) Applied research at field level; (ii) Research carried out by group/institution/organisation in the field of medical education/health care problems.

The value of each award is Rs. 5,000/- in cash and a medal. The last date for the receipt of nominations is *31st October, 1978.*

Further details may be had from Secretary, Medical Council of India, Aiwan-E-Ghalib Marg, Kotla Road, New Delhi—110 002 by sending a stamped self-addressed envelope, indicating nature of the award.

Christian Medical College and Hospital, Vellore

The Christian Medical College and Hospital at Vellore is completing its 75th year of distinguished medical service. The Platinum Jubilee Celebrations of the hospital synchronises with the diamond jubilee year of the medical college which came into existence in 1918. The chief attraction of the Jubilee Celebrations is the formal inauguration by the President of India, Sri Nilam Sanjeeva Reddy in June next of the Betatron plant, a gift from the people of Denmark, to be installed with the technical collaboration of West Germany. Betatron is the most sophisticated and powerful device for cancer therapy.

A new Rural Unit for Health and Social Affairs (RUHSA) which is the crystallisation of the CMC & H's long standing concern for community welfare will also be formally inaugurated as a part of the Jubilee Celebrations in October. A special Jubilee Convocation will be held in 1978. The first oration in the Professor Shanti Swaroop Bhatnagar Annual Oration Series is expected to be delivered by Dr. Raja Ramanna, Scientific Adviser to the Ministry of Defence and Director General of Defence Research. The Platinum Jubilee Celebration will conclude with a week-long function in the hospital in February 1979.

Annual Conference of Indian Psychiatric Society

The 31st Annual Conference of the Indian Psychiatric Society will be held at Pune on January 5-7, 1979. Further information can be obtained from the Organising Secretary, Lt. Col. R. N. Bhattacharya, Professor of Psychiatry, Armed Forces Medical College, Pune-411 001.

International Session on Medical Anthropology

A postplenary session on Medical Anthropology will be held on December 19-21, 1978 at Pune following the plenary sessions of the 10th International Congress of Anthropological Sciences at Delhi. Medical scientists, anthropologists and other social scientists interested in comunity health, ethnomedicine and allied subjects are welcome to attend the session. Abstracts of papers and completed papers to be presented at the session should reach before *July 15* and *August 31, 1978* respectively. Detailed information may be had from Mr. R. K. Mutatkar, Department of Anthropology, University of Poona, Pune-411 007.

XXVI International Congress of History of Medicine

The 26th International Congress of History of Medicine will be held on August 20-25, 1978 at Plovdiv in Bulgaria under the Chairmanship of Prof. V. Povlova of Sofia. Detailed information about the Congress and registration forms, etc., may be had from Dr. D. V. Subba Reddy, Ex-Director, Indian Institute of History of Medicine, 1-10-82 Ashokenagar, Hyderabad-500 020, A.P.

CORRESPONDENCE

The Editor is not responsible for the views expressed by correspondents

Occurrence of *Oestrus ovis* Larvae in Nasal Cavity of a Woman

SIR,—*Oestrus ovis* (Linne, 1761) 'the sheep nasal fly', normally deposit their young larvae around nostrils of sheep and rarely in those of goat and camel (Soulsby, 1968). Human cases with *Oestrus ovis* larvae infesting conjunctiva, nostrils and lips have been reported from Middle East and European countries (Faust, 1956). From India, the only report is that of Balakrishnan *et al.* (1963) who recovered larvae of *Oestrus ovis* from the conjunctiva of a man.

The samples of a few larvae removed from the nasal passage of a woman, aged 67 years, housewife, resident of Nagla Chatti, Bisawar, district Mathura, were referred to the authors by a physician of Mathura town during December, 1975. Her main complaints were frequent nasal bleeding, pain, vertigo, headache, and irritation in both nostrils. She had similar episodes of passing worms in 1947 and in 1968.

The larvae measured 13-15 mm. in length and 4-5 mm. in thickness, carried two oral hooks, 2-4 rows of small brownish spines on the ventral surface of abdominal segments, the D-shaped black chitinons stigmal plates with button in the centre.

The present material tallies with the description given for second stage larva of *Oestrus ovis* by Lapage (1968) except for the smaller size which might be due to development in an abnormal host. Infestation of nasal cavity of man, a zoonosis, is being recorded for the first time from India.

We are, etc.,

R. D. AGRAWAL, M. V. Sc.,
Research Assistant
S. S. AHLUWALIA, M. V. Sc., M.S., Ph.D.,
Professor and Head
B. B. BHATIA, M. V. Sc., Ph.D.,
Research Assistant

Department of Parasitology,
College of Veterinary Science
and Animal Husbandry,
C. S. Azad Universtiy of
Agriculture and Technology,
Mathura Campus.

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SOULSBY, E. J. L.—Helminths, Arthropods and Protozoa of Domesticated Animals, 1968, Bailliere Tindal and Cassell, London, p. 824.

Are the Anti-amoebic Combinations Therapeutically Sound?

SIR,—Currently, a large number of anti-amoebic drug combinations are flourishing in the market. Many of these contain at least three different groups of drugs: (i) An intestinal amoebicidal agent i.e., iodochlorhydroxyquinoline or di-iodohydroxyquinoline; (ii) an extra-intestinal amoebicidal agent e.g., chloroquine phosphate; and (iii) an antibiotic i.e., tetracycline or oxytetracycline which do not act directly on the pathogenic amoebae but act by interfering with the enteric flora essential for the growth of the amoebae.

Practically, all these preparations are recommended for use as two tablets/capsules three times daily. An examination of the components of these combinations (Table 1) has revealed that the preparation Nos. 1, 2, 3, 4, 5, 6, 7 and 9 provide chloroquine phosphate as a maintenance daily dose (500 mg./day) which is not the adequate quantity of 1 g./day, required for initiating the treatment, while preparation No. 8 provides it in adequate dose for starting the therapy but this is too high for maintenance therapy (half-life being 3 days). The problem of providing the correct dose of chloroquine has been posed only due to the currently much employed "fixed dose" pattern of therapy which can cause both under-and overdosage problems of which this is a glaring example.

Table 1—*Showing the Composition of Some of the Commonly Prescribed Proprietary Anti-amoebic Combination (All Figures Denote mg. in Each Tablet or Capsule)*

Preparation No.	Quiniodochlor (iodochlor-hydroxy-quinoline)	Di-iodohydroxy quinoline	Chloroquine phosphate	Tetracycline	Oxytetracycline
1. Alliquin Forte (Standard pharmaceuticals)		325	80	167	
2. Amicline (Griffon)		250	80	25*?	
3. Amebiotic (Pfizer)		300	85		167
4. Iodocycline (Smith S.)	200		80	50*	
5. Triquin (Ramson)		250	100	175 ?	
6. Amebide (Roberts McLean)	250		90	150 ?	
7. Tequinopil (Opil)	125*		80	50 ?	
8. Esticline (Thio-Kof)		250	150	100*?	
9. Antecline (Medicure)		300	80		50*

* In this dose the drug is positively in a dose lower than the effective dose

?This component is much poorer in effect than oxytetracycline for anti-amoebic therapy

In a large number of these preparations, i.e., Nos. 2, 4, 7 and 9 the antibiotic is in subtherapeutic dose and the daily administration may amount to much less than 1 g. which is normally required (Table 1). It is, therefore, not only ineffective but positively harmful as it is likely to cause resistance in the micro-organisms. Moreover, in preparation Nos. 1, 2, 4, 5, 6, 7 and 8, the antibiotic included is tetracycline[1] against oxytetracycline in spite of latter's superiority over the earlier having been clearly established. Preparation No. 7 also suffers from the handicap of low dose of quiniodochlor (iodochlorhydroxyquinoline).

In our opinion one of these combinations are suitable for both initial as well as maintenance therapy in amoebiasis. We are, however, seriously concerned with the composition of preparation Nos. 2, 4, 7 and 9 which, for reasons given above, not only result in wasteful expenditure by the patient but may cause more long-term harmful effects by subtherapeutic doses of tetracyclines than the immediate benefit by halogenated quinoline derivatives. We feel that this is a glaringly preposterous state of anti-amoebic combinations in this country and, therefore, decided to share our views with others and hope the Drug Control Department will look into these serious inconsistencies.

We are, etc.,

P. C. DANDIYA, J. S. BAPNA, S. K. PATNI
Department of Pharmacology, S.M.S. Medical College, Jaipur.
University College of Medical Sciences, Ring Road, New Delhi.

REVIEWS

The Nature of Cancer, Vol 1—By Dr. Mannu L. Kothari and Lopa Mehta, 1973, Kothari Publications, Acharyya Donde Marg, Bombay 400 012, India, 25 cm. X 18 cm., pp. xxix + 902, $ 30, £ 12.

This book is an excellent, thorough, exhaustive and valuable treatise on cancer in all respects. It is useful to the clinician as well as to the research workers. Volume I has been divided into three parts, each dealing with a distinct facet of the problem. The treatment throughout the book is logical, based on experimental facts and other informations. The book is quite elaborate perhaps a little too much. The development of the subject is very systematic and written in a dignified way. Fantastic reference of literature have been given.

In the first two parts, main concepts of cancer have been presented in an analytical manner but in several places repetitions are prominent but the language is very dignified.

Cancer is a statical sequence of living cells undergoing division. According to the authors it is fully intrinsic in origin. If the cancer genome is present in any individual which is statical in nature then a cell will turn into cancer after exhaustion of FCDC (finite cell doubling capacity) of the cell according to all or none law.

The outside agency can at best hasten the onset of cancer by expending the FCDC more quickly than in the normal way. It appears that the author have underestimated the role of external agency. Admitting the authors' opinion in individual where the cancer

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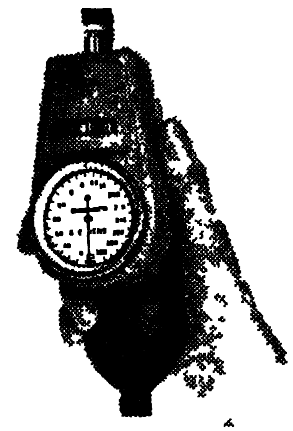

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genome is present, the external agency can play its part.

Obviously, we are not concerned with those who have no cancer genome. But in others if some external agencies can hasten the onset of cancer by quickly exhausting the predetermined FCDC, certainly there must be some scope by which the shortening of FCDC can be prevented and perhaps extended

Very aptly and justifiedly, little of the main part (part 3) has been given to cancer in individual than cancer in general.

The chapter on treatment of cancer contains all the uptodate informations with some future suggestions but the undercurrent gloomy picture could not be suppressed. About early detection of cancer, elaborate informations have been dealt with many references but according to the authors "Diagnose and Treat Early" have limited scope.

All the chapters have been thoroughly dealt with, hardly there is any lacunae in any aspect. But in spite of some consoling words at the conclusion of every section, an undercurrent of pessimism has flown throughout the whole work. It has attempted to accept the enemy (cancer) with a philosophical outlook. This view seems to be premature. One should take that view or the other after one knows fully about cancer from which we are far off. In the present state, with the uptodate informations, that sort of view is unnecessary and disappoint the patient and the doctor and perhaps provide a consolation for the scientist and at the same time frustrating them.

HARISADHAN DUTTA

Diseases of the Nose, Throat and Ear—By A. Sinha, 1976, Asia Publishing House, London, 24 cm. × 15 cm., pp. xxii + 276, Rs. 60.00.

There was a long-felt need for a good ENT book from Indian authors giving special stress on local factors and based on local climate, hygiene and nutrition. This book will satisfy the same need to a great extent. It has thoroughly dealt with basic diseases of nose, throat and ear with special emphasis on local condition. The chapters on basic science and surgical anatomy will help the students to have better grasp on the subject. Special stress on the method of examination is praiseworthy. The book will not only serve the purpose of the undergraduates, but will also help the young ENT house surgeons and medical graduates who are willing to take up ENT as their future career.

The footnotes mentioned in the book will be useful to the postgraduate trainees. Another bright aspect of the book is that preventive aspect of ENT diseases have been stressed by the author, so also sequelae and complications.

The illustrations are simple and accurate, but I feel some of the illustrations such as those of eliciting sinus tenderness, indirect rhinometry, Valsalva's manoeuvre, etc., and diagrams of the larynx, ear, tympanic membrane, etc., should better be placed in the corresponding chapter of the book for better understanding and application by the students.

S. K. DE

Radiotherapy in Modern Clinical Practice—Edited by H. F. Hope-Stone, 1976, Crosby Lockwood Staples, London, 21.5 cm. × 15.5 cm., pp. x + 358, £ 10.00.

This is an extraordinary book in the field of oncology. Cancer is the most dreaded disease and its cure is still a dream to us. Uptodate knowledge of its management can definitely improve the salvage rate. Each and individual type of cancer should be dealt by a team of specialists and this view has been documented well in this volume. Radiotherapy has its role both as a curative and as a palliative measure. The preliminary chapters have been devoted to technical aspects of radiotherapy which every radiotherapist must know and are also useful for others in different disciplines of oncology.

Contributors are the consultants in physics, medicine, surgery and radiotherapy who have enriched the volume by knowledge from their own long experience in this field.

The students appearing in D.M.R. or M.D. in radiotherapy or oncology will find the book very helpful.

SAROJ GUPTA

Medical Microbiology, Vol. II (The Practice of Medical Microbiology)—By Robert Cruickshank, J. P. Duguid, B. P. Marmion and R. H. A. Swain, 12th Edition, 1975, Churchill Livingstone (ELBS ed.), Edinburgh, London and New York, 24 cm. × 19 cm., pp. x + 587, £ 7.50.

This is the long expected edition of the book which is widely read by medical and science students as well as by doctors throughout the world. Volume I, according to the authors, was 'primarily meant for science students and doctors' while 'Volume II is directed to professional and technical laboratory staff'. The two volumes are complimentary.

Volume II is divided into two parts. Part-I is devoted to technical methods, and Part-II to the identification of micro-organisms and the laboratory diagnosis of specific infections.

Because the book is dealing with all the branches of microbiology, that is bacteria, viruses, mycoplasma, rickettsiae, fungi and protozoa, it is quite natural that details would be lacking in some descriptions, but the authors have given a large number of references for those who want to know further.

As the subject matter of this volume leans heavily on that of volume I, the authors have advised that the two volumes 'should be used together'. One may feel this to be a disadvantage.

However, the book is highly informative and may be recommended to the medical microbiologists in general and students in particulars.

J. K. SARKAR

OBITUARIES

Dr. D. P. Dhar

Death took place of Dr. Dwarik Prasad Dhar, a distinguished leader of IMA, on 10-12-1977 following a brief illness. Dr. Dhar, who was President of the Ranchi Branch for serveral years, President of the Bihar State Branch for 1964-65 and Vice-President of the IMA (Hqrs.) for two terms, was born in 1902 at Patna. After qualifying for the medical profession from Temple Medical School (now Patna Medical College) in 1926, he served at Banwari Lal Hospital, Laheriasarai (at present Darbhanga Medical College Hospital) from 1927 to 1942, first as a demonstrator in anatomy and later as a teacher in surgery. Subsequently he was posted as Civil Surgeon at Purnea and thereafter at Ranchi. On his retirement from Government Service in 1959 he was appointed Chief Medical Officer of the N.C.D.C. at Ranchi. Retiring from N.C.D.C. in 1965 he devoted himself solely to the service of the suffering humanity through IMA and other philanthropic organisations. A man of deep academic interest Dr. Dhar was a member of the Senate and Syndicate of Ranchi University for many years and was also a member of the Medical Council of India. Besides being Chairman of the Chotanagpur Education Council since its inception in 1968, he was associated with the Rotary International and was President of the Ranchi Rotary Club for a period. He was appointed Chief Medical Adviser in 1975 to the WHO for the Smallpox Eradication Programme. He leaves behind his wife, a son and a daughter.

DR. D. P. DHAR

DR. M. D. SAHGAL

Dr. Mathura Das Sahgal

Dr. Mathura Das Sahgal, a distinguished member of the Jullundur Branch of IMA, passed away on 22-1-1978. Born on 4-11-1891 Dr. Sahgal qualified for the profession from King George Medical College, Lahore (now in West Pakistan). Joining service as a medical officer in Burma in 1912, he volunteered for the army medical corps during the 1st World War. He left Burma in 1942 forced by the political situation prevailing there at the time. During his journey to India through hillyterrains and forests he attended the sick refugees and those wounded in the war. He returned to Burma in 1945 along with members of the Burmese Government in exile and was honoured by the Government for his dedicated service. After Independence he came back to India and started private practice in Jullundur.

Dr. R. A. Bhagwat

Dr. R. A. Bhagwat, a former Senior Vice-President of IMA and President of M.P. State Branch, passed away on 25-11-1977. Born on 9-4-1907 at Gwalior Dr. Bhagwat matriculated from the Punjab University and qualified as an L.M.P. from Nagpur Board and as L.C.P.&S. from Bombay. Shortly after he started his private practice in 1936, he came to be associated with the Indore Branch, which flourished considerably during his tenure first as Secretary and later as President. He established a charitable rural health centre at Manglia, a small village about 11 miles away from Indore in 1955 and followed it up with a similar centre at Kasturbagram. A senior member whose views were often sought and highly regarded by those at the IMA Headquarters. Dr. Bhagwat toured almost the whole of India for promoting the cause of IMA. In 1973 the people of the Indore City felicitated him for his contribution to IMA and his long dedicated service for alleviating human sufferings.

DR. R. A. BHAGWAT

DR. D. N. BHATNAGAR

Dr. Dina Nath Bhatnagar

Dr. Dina Nath Bhatnagar, a member of the Allahabad Branch of IMA, passed away on 8-2-1978 after suffering from cancer prostate. Born in January 1901, Dr. Bhatnagar graduated in medicine from King Edward Medical College, Lahore, in 1925. He had a brilliant academic career and secured Government scholarship and a number of medals and certificates of honours in different subjects. He joined the Sir Ganguram Hospital, Lahore, in 1926 as a house-surgeon and served in the surgical and eye departments of hospital till 1932. He took up private practice in 1933 and started his own clinic in Lahore. Following the partition of India in 1947 he shifted to Allahabad and soon established himself there as an E.N.T. consultant. He was also attached to Crosthwaite Girls' College as medical officer.

SUPPLEMENT

VOL. 70, No. 11 : CALCUTTA : JUNE 1, 1978

Association Notes

IMA President's Appeal to Members

Dear Members,

Your Journal is housed in a building which is neither sufficient for its growing needs nor is in a sound condition to ensure smooth working. The need for a proper place for a better function was being felt for a long time.

Members of IMA both at home and abroad will be happy to know that your Building Standing Committee has prepared plans to construct a building for your Journal in Calcutta which will provide accommodation for stay of members also. With the rise in price of material and labour the construction costs have gone sky-high. To build your own house, no sacrifice is big enough. I take this opportunity to appeal to you to donate liberally for the Building Fund of the IMA Building, Calcutta so that the project may be started without loss of time.

All contributions big and small will be gratefully accepted and those of us who cannot pay lump sum may start remitting their contributions in instalments.

I am confident you will rise to the occasion to construct your house.

DR. J. V. R. SARMA,
President

Proposal for Periodical Registration of Doctors by State Medical Councils

In course of a circular issued from the IMA Headquarters, New Delhi, Dr. M. G. Garg, Hony. General Secretary, IMA states:

Of late, there has been a move on the part of some of the State Medical Councils to replace the system of one time registration for doctors by compulsory periodical registration possibly once in every 5 years. In fact some of these State Councils have sought the opinion of IMA on the subject and the IMA has strongly opposed the move for many reasons. The Indian Medical Association has also repeatedly placed its views on the subject before the Medical Council of India, which is the statutory body responsible for maintaining standard of medical education and registration of medical personnel in the country. Taking into consideration the recommendations of the IMA in this behalf as also the opinions from other sources, the Medical Council in the meeting of its Executive Committee held on March 16, 1978 considered this issue and decided as under:

> "The Executive Committee considered the question of making provisions in the Indian Medical Council Act, 1956, for periodical registration of doctors in the country and the Executive Committee was not in favour of making any provisions for periodical registration of medical practitioners, but some procedure be laid down to effectively keep and maintain a live Indian Medical Register."

The above decision of the Medical Council is being communicated to you for your information and reference whenever necessary. In case there is a proposal of levying compulsory renewal fees on doctors in your State it should be opposed tooth and nail and the Headquarters be apprised of the developments whereever necessary.

IMA Collage of GPs to Organise a Workshop Seminar at New Delhi

The IMA College of General Practitioners proposes to organise a Workshop Seminar at New Delhi on August 13-15, 1978 on the theme "Evaluation of General Practice/Community Medicine and Self-assessment —Techniques and Methods." In an appeal issued in this connection Dr. P. C. Bhatla, Dean of Studies, IMA College of General Practitioners, states:

"It is well-known that over 85,000-90,000 are general practitioners. Some of them are general duty medical officers. They all need constant refreshing. Those working in institutions, etc., may be having constant exposure to the recent advances, but those outside in practice have but little to rely on. As such, it is thought that a national feeling has to be aroused in this field for all to share responsibility of providing and evaluating 'Continuing Education' as well as devising methodology and technique for self-education and self-assessment of the academic advancement achieved by each practitioner."

The College hopes to finalise in this workshop seminar details of strategy for implementation of programmes within the national resources. The workshop seminar is intended in particular for the representatives of the IMA College of General Practitioners and the Heads of Departments of Preventive and Social Medicine of all Medical Colleges and their Deans.

Individuals or institutions intending to join the workshop seminar are requested to have registration form and detailed information regarding, fees, accommodation, programme, etc., from the IMA College of General Practitioners, IMA House, Indraprastha Marg, New Delhi 110 002.

Results of II All-India Examination for F.C.G.P.

The following have qualified for and will be awarded Fellowship of the IMA College of General Practitioners (F.C.G.P.) in recognition of their professional and academic excellence judged through an examination (both written and oral and practical) held on April 8-10, 1978, announces Dr. P. C. Bhatla, Dean of Studies, IMA College of General Practitioners:

A. Merit List:

1. Dr. Sudhir Oswal (Delhi)—Awarded gold medal and certificate of merit. 2. Dr. Ram Awatar Sharma (Dumra)—Awarded silver medal and certificate of merit. 3. Dr. Mohammad Daud Ali (Biharsharif)—Awarded bronze medal and certificate of merit. 4. Dr. Nawal Kishore Prasad (Biharsharif)—Awarded certificate of merit. 5. Dr. Chandra Suresh (Biharsharif)—Awarded certificate of merit and 6. Dr. Savitri Sinha (Sitamarhi)—Awarded certificate of merit.

B. Other Successful Candidates (State-wise List):

1. Dr. Ram Mohan Agarwal (Moradabad); 2. Dr. Arun Kumar (Bareilly); 3. Dr. Ram Krishna Chander Misra (Gorakhpur); 4. Dr. Naveen Chander Sehgal (New Delhi); 5. Dr. Roshan Lal Gupta (Sri Karanpur); 6. Dr. Hardev Singh Sandhu (Batala); 7. Dr. Jagannath Bhagat (Monghyr); 8. Dr. S. Balakrishnan (Pattukkottai); 9. Dr. M. I. Jahan (Gauhati); 10. Dr. M. L. Sharma (Giridih); 11. Dr. Irrinki Suryanarayana Rao (Bhimavaram); 12. Dr. Goteti Gunasagar (Bhimavaram). 13. Dr. Nandyala Pulli Venkata Satyanarayana Raju (Bhimavaram); 14. Dr. P. J. Rao (Chilakaluripet); 15. Dr. Vinay A. Naik (Surat); 16. Dr. S. G. Kimmatkar (Nagpur); 17. Dr. K. R. Sanghavi (Ahmedabad); 18. Dr. P. A. Sarasu (Ettumanur); 19. Dr. P. K. Sukumaran (Trichur); 20. Dr. O. Baby (Ettumanur); 21. Dr. N. C. Joy (Pulikal Kauala); 22. Dr. K. E. Paulose (Muvattupuzha); 23. Dr. Krishna Dayal Prasad Verma (Chandi); 24. Dr. M. Iqubal Ahmed (Mahalpar); 25. Dr. Ashok Kumar Verma (Khandak-

par). 26. Dr. Awadhesh Prasad (Biharsharif); 27. Dr. Jugdeo Prasad (Hilsa).

C. Candidates to Reappear in A Part of the Examination :

1. Dr. Baqai Moninuddin (Delhi)—In Paper I and II (Part I) and in Part II. 2. Dr. P. G. Mohankrishnan (Moongilthuraipattu)—In Part II only. 3. Dr. Patel Divyakant Govindlal (Ahmedabad)—In Paper I and II (Part I) and in Part II. 4. Dr. Anjana Divyakant Patel (Ahmedabad)—In Paper I and II (Part I) and in Part II. 5. Dr. Shah Narendra Natvarlal (Ahmedabad)—In Paper II (Part I); and in Part II. 6. Dr. Gautam Prakash Sahai (Patna)—In Paper I and II (Part I) and in Part II.

Entries Invited for IMA Awards, 1978

The Indian Medical Association (Hqrs.) has announced the following awards to be given away during 1978 :

1) IMA MEDICAL EDUCATION AND RESEARCH AWARDS

Subject: Scope of Research in and into General Practice

The award carries a cash prize of Rs. 1,000/- and a scroll plus actual travelling expenses (subject to maximum of Rs. 500/-) to and from the place of All-India Medical Conference for the year.

2) IMA MEDICAL EDUCATION AND RESEARCH AWARD FOR YOUNG GRADUATES

Subject : Ethics in Medical Profession

The award carries a cash prize of Rs. 500/- a scroll and a maximum of Rs. 250/- for travel to and from the place of All-India Medical Conference for the year.

3) IMA DR. DHIRENDRA DUTTA AWARD IN CARDIOLOGY

Subject : Domiciliary Management of Coronary Heart Disease in Rural Surroundings

The award carries a gold medal and a scroll.

The award No. 1 and the award No. 3 are open to all members of IMA. The award No. 2 is open to those members of IMA who have not completed 10 years from the first day of internship.

Dissertations on respective subjects of the awards in quadruplicate must reach the IMA headquarters by not later than *September 30, 1978.*

4) DR. D. S. MUNAGEKAR AWARD

The award carries a cash prize of Rs. 1,000 only and will be given for the best published research work in any subject in the field of medical subjects including clinical research. Rules regarding the award and the proforma for furnishing particulars of a nominee may be obtained from the IMA Headquarters. The proforma duly completed in quadruplicate should reach the respective local State/Territorial Branch by not later than *September 30, 1978.*

5) DR. C. T. THAKAR AWARD

The award carries a cash prize of Rs. 1,000/- and is intended to encourage community service of young doctors. Entries have to be submitted in the form of accounts of the work done by an individual doctor. Rules of the award may be had from IMA Headquarters. Particulars in quadruplicate from members competing for the award should reach the Headquarters Office or the respective local and State/Territorial Branches of IMA by not later than *September 30, 1978.*

DGHS Urges Members of IMA to Join the Fight against Malaria

The Director General of Health Services, Government of India, New Delhi, has issued the following message to members of IMA :

The incidence of malaria was brought down to mere 0.1 million cases in 1965 from 75 million during 1947-48 by successful implementation of the National Malaria Control Programme and the National Malaria Eradication Programme. Deaths due to malaria were completely eliminated. Due to various factors the scourage of malaria is showing its ugly head again. With the drastic reduction in the incidence of malaria, the interest of medical practitioners in this subject also declined but with the re-appearance of malaria the clinicians should come forward to help in the control and eradication of the disease. Their role is very vital in treatment and management of malaria cases, particularly in cerebral malaria.

The problem of malaria today is such that only Government's efforts will not yield the desired result till the medical practitioners come forward and share in this gigantic programme. The Indian Medical Association has always stood by the side of the Government whenever their services were required. The IMA can organise through its good offices the medical practitioners, who have a vital role to play in this important National Malaria Eradication Programme. The patients have great faith in the medical practitioners and by virtue of this, the doctors have great influence on them.

To fight malaria a modified plan of operation has been introduced with effect from 1-4-1977 throughout the country. Under this plan insecticide spraying will be undertaken in areas where the Annual Parasite Index is 2 and above (i.e. 2 cases per 1000 population per year). Surveillance work for reporting fever cases and collection of blood slides from these fever cases also form a part of the modified plan of operation. The surveillance worker visits every house in his beat fortnightly and takes blood smear from fever cases and gives presumptive treatment. If the blood slide is found positive, a 5-day radical treatment is given. Each worker has been allotted 8,000 to 10,000 population. The incidence of cases has become so high that the surveillance worker cannot cope with all of them. For detecting malaria a blood slide is a must. A large number of fever cases is coming to medical practitioners everyday. It is expected therefore that every medical practitioner would think of the NMEP and help the Government in the following manner :

1. Prepare blood smear from each fever case.
2. Examine the blood smear himself wherever laboratory facilities are available with him and keep the proper record.
3. Get the blood smear examined and obtain the result from the nearest laboratory.

The medical practitioners may face difficulty in despatching the slides. All the States have been advised to render help to them. They should sort out the difficulty regarding despatch of slides with the local health authority. The IMA can take up the matter with their respective State Branches and can finalise the procedure with the local or State Health authorities.

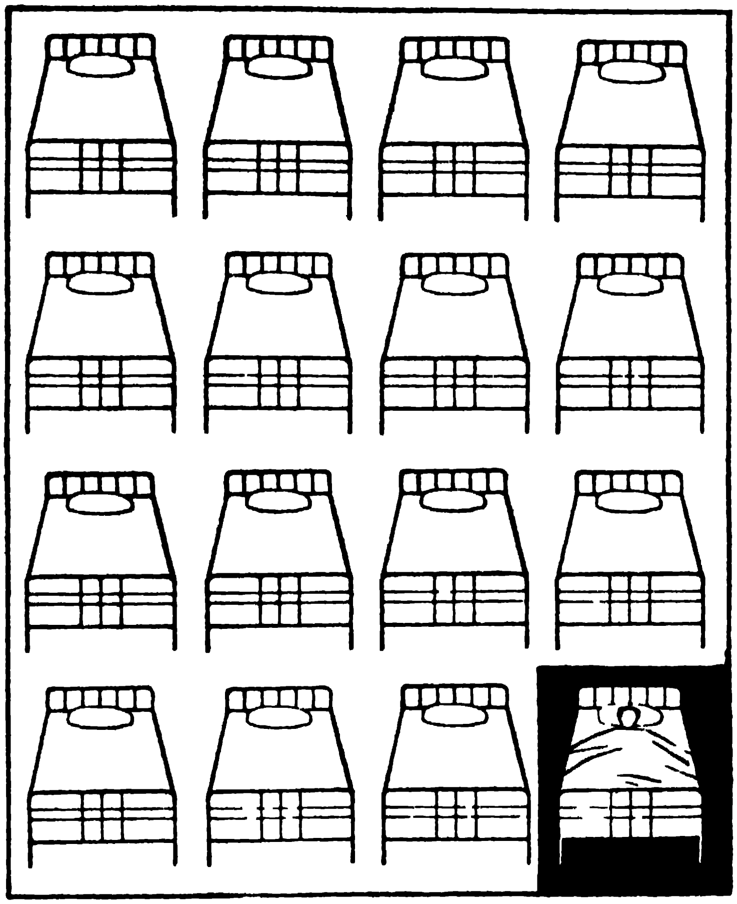
It is suggested that in an area one clinic of a medical practitioner may be fixed as drug distribution centre and about 10-12 medical practitioners around it should send blood slides to this centre. The surveillance worker will collect, take the slides to the laboratory and also bring back the report.

4. Spread health education which has an important role to play in the programme.

It is true medical practitioners remain busy in their clinics but they may advise their patients (i) to accept spray when the spray team visits, (ii) to accept antimalaria drugs when it is required. (iii) not to allow water to collect in any container for more than 7 days and iv) take a course of drug for 5 days if the blood slide is found positive for malaria.

5. Spare some of his time to maintain record of antimalaria drugs and blood slides supplied to him.

I appeal to all members of the Indian Medical Association to come forward and strengthen my hands to face this enormous challenge and I am confident that they will leave no stone unturned in the fight against malaria.



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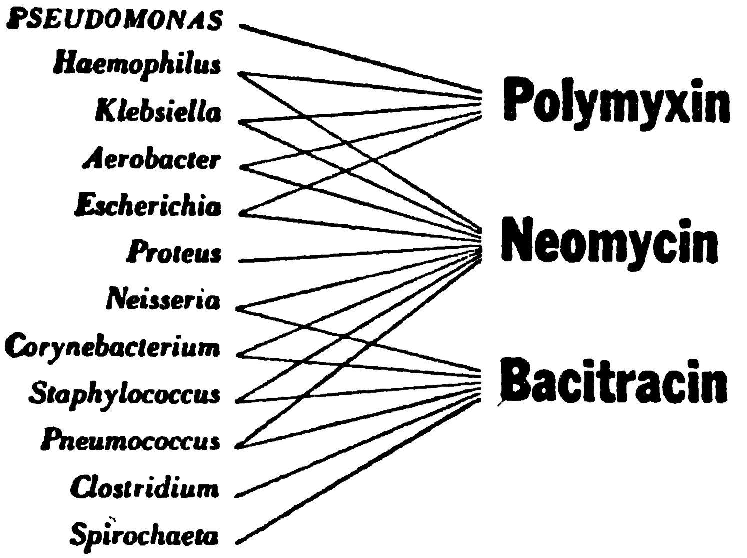

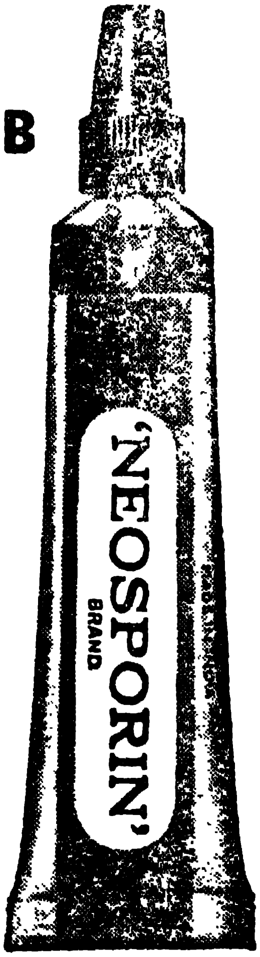

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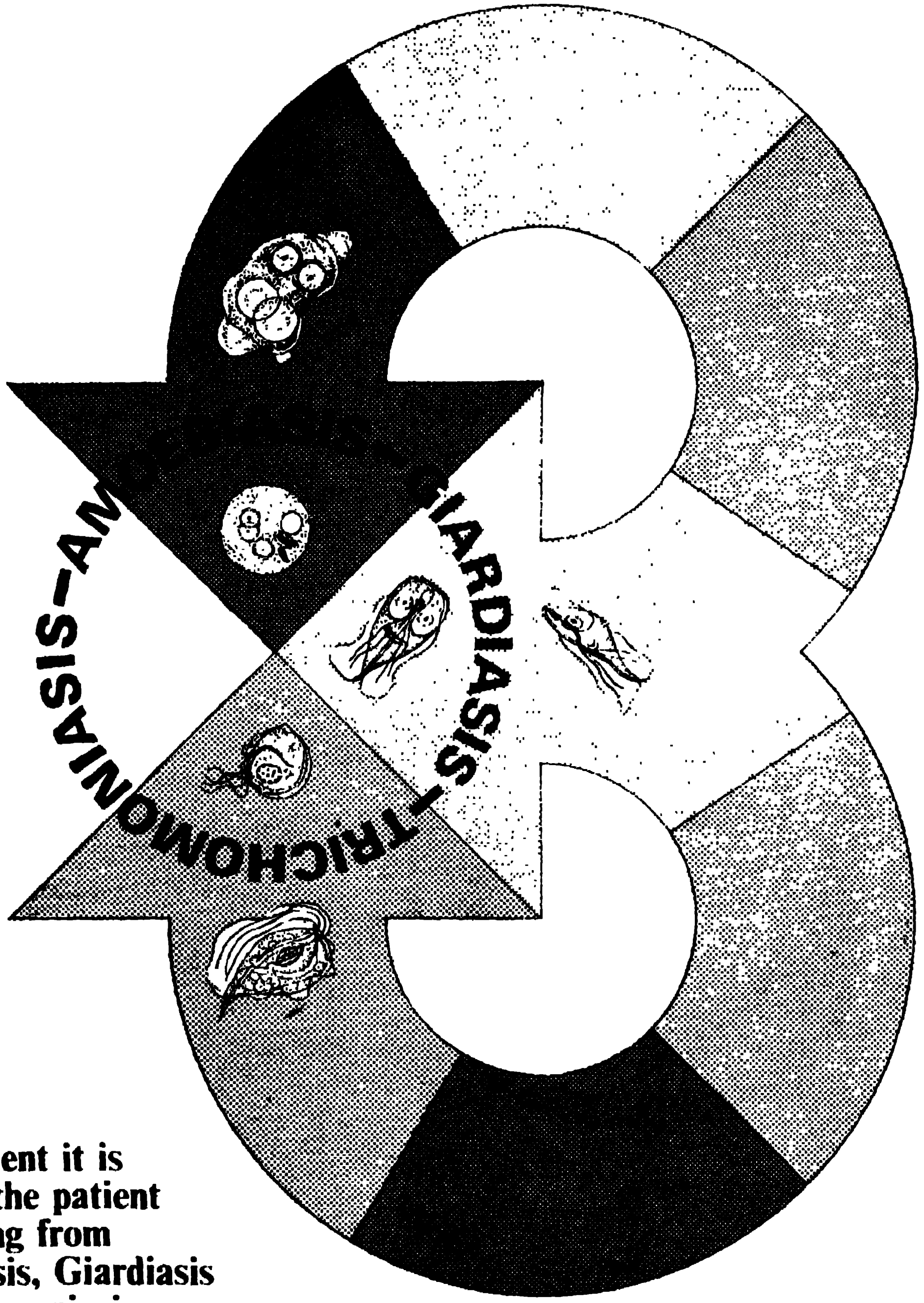

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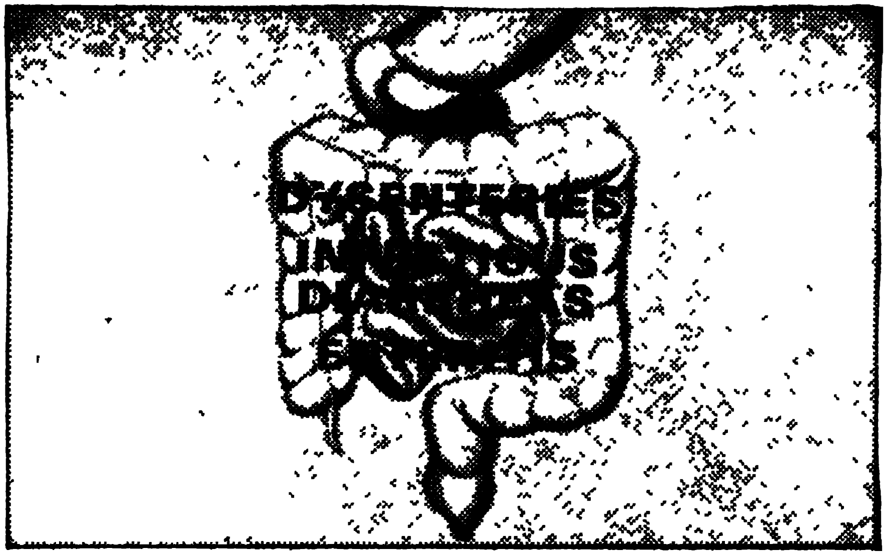

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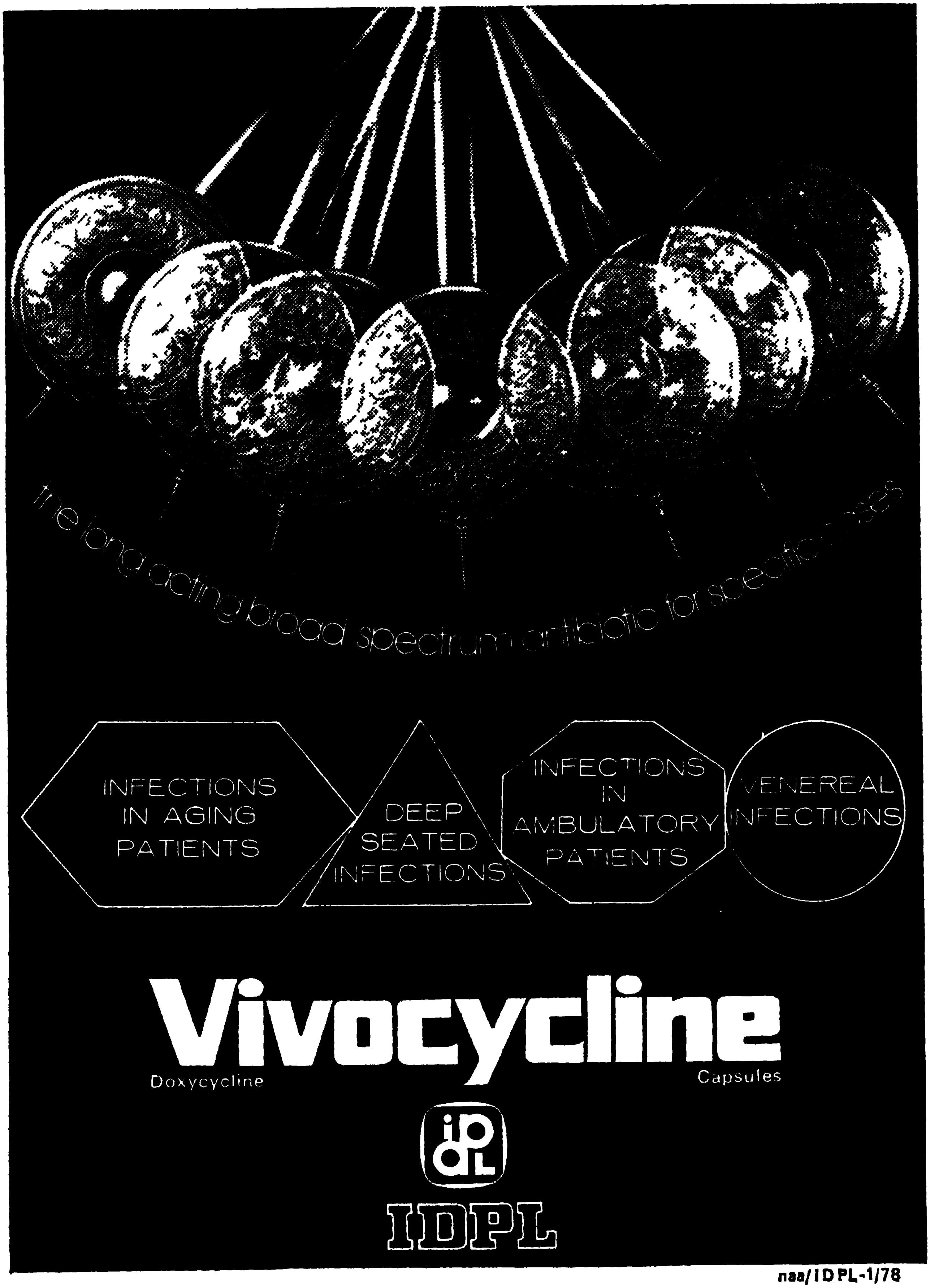
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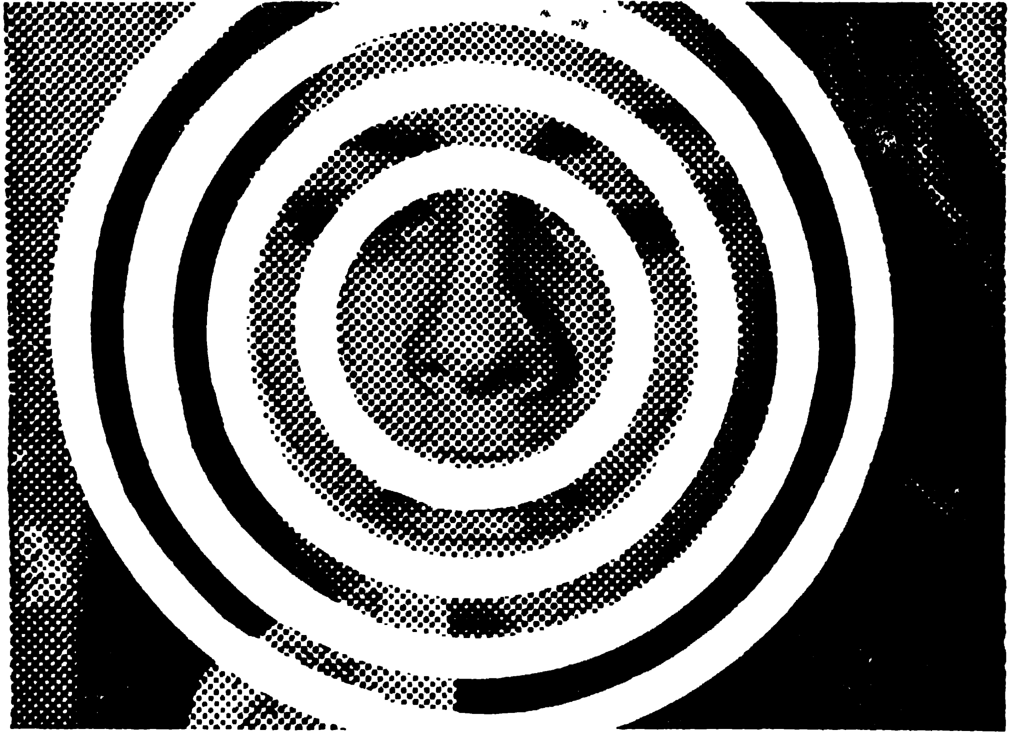

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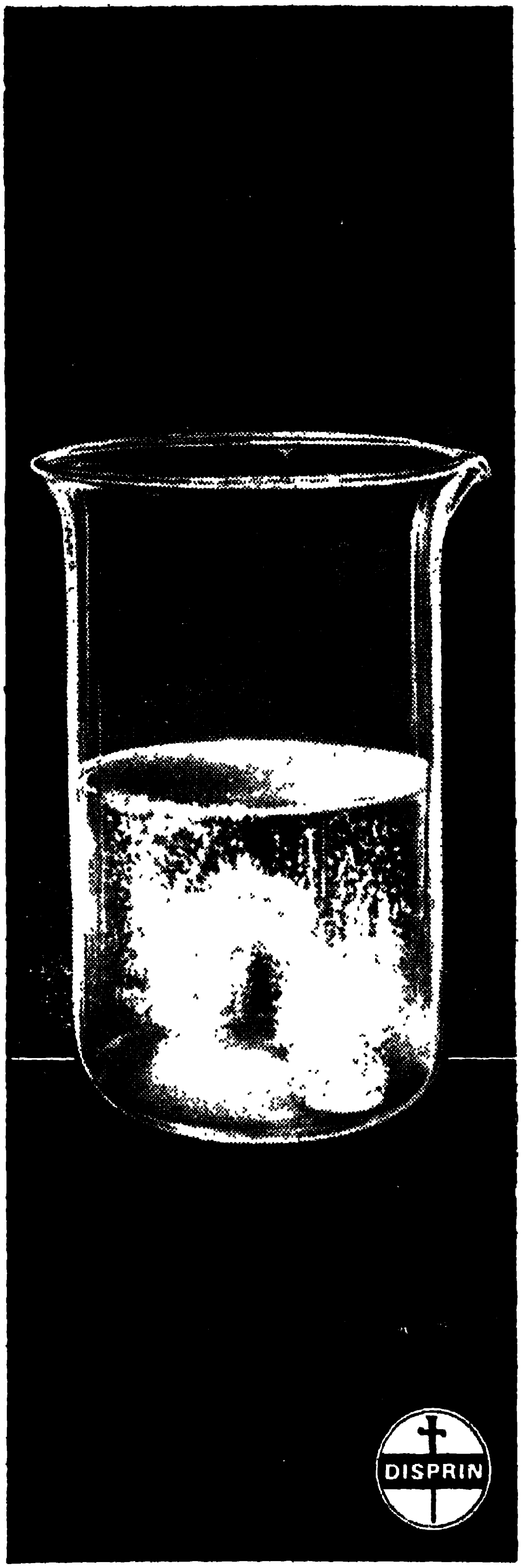

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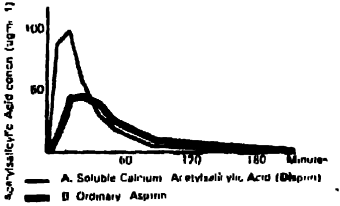

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(1) Sleight, P. (1960) Lancet 1.305.
(2) Rance J.M. et al. (1975) Pharm Pharmac. 27,425.

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2. **Lactation for Delaying Re-establishment of Menstruation and Its Possible Role in Family Planning**—(Mrs.) Sushila Rathee, Tripta Yadav 30

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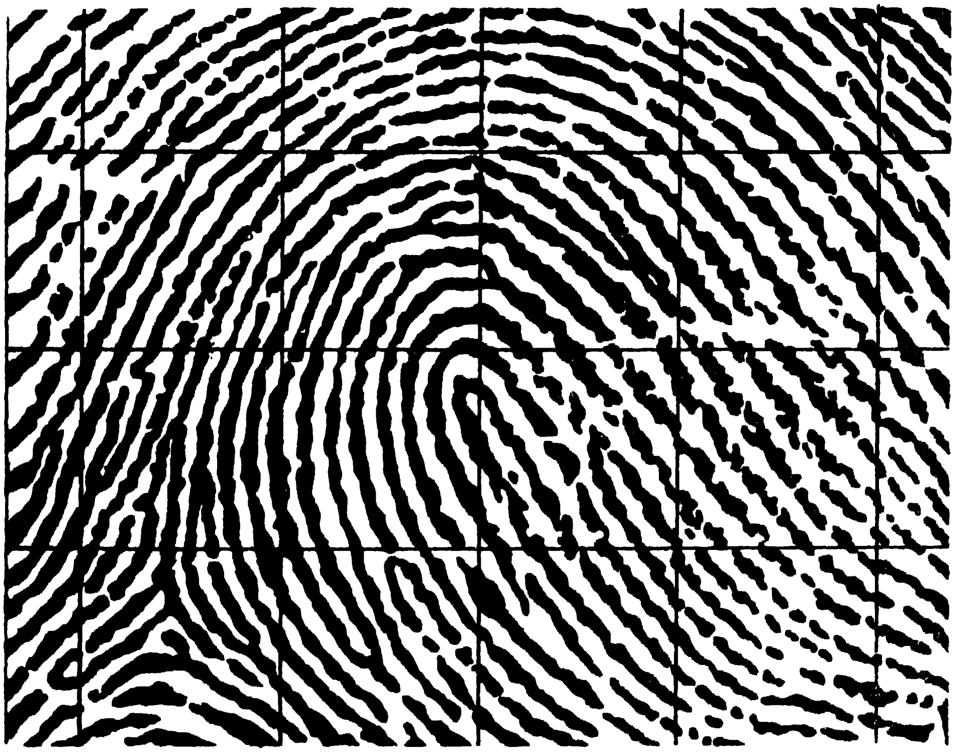

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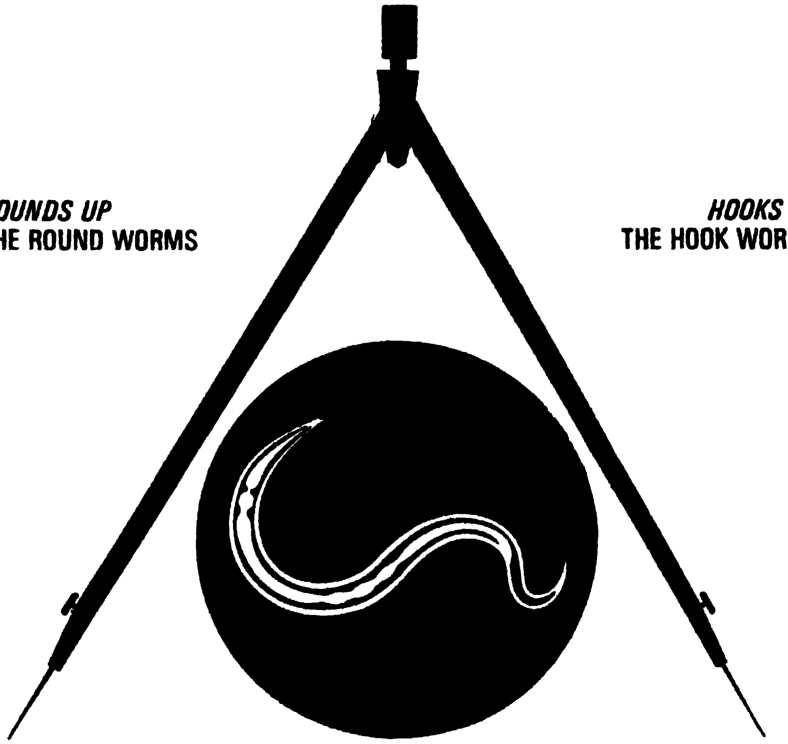

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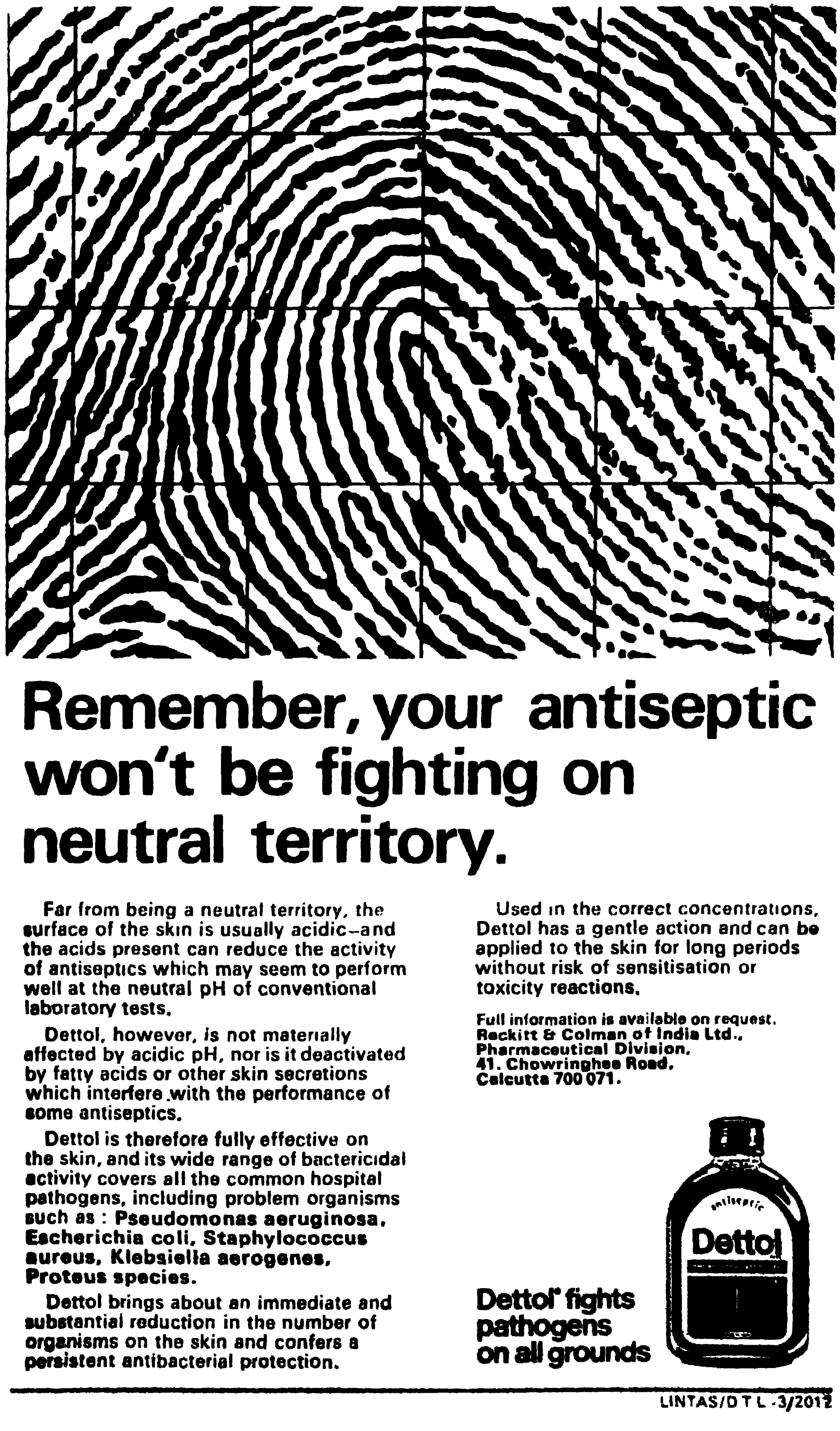

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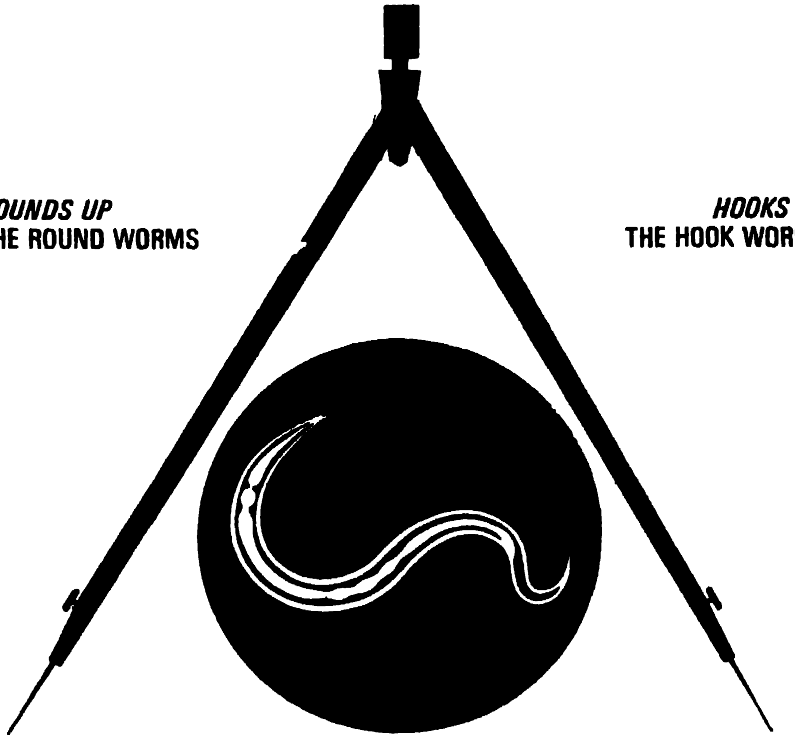

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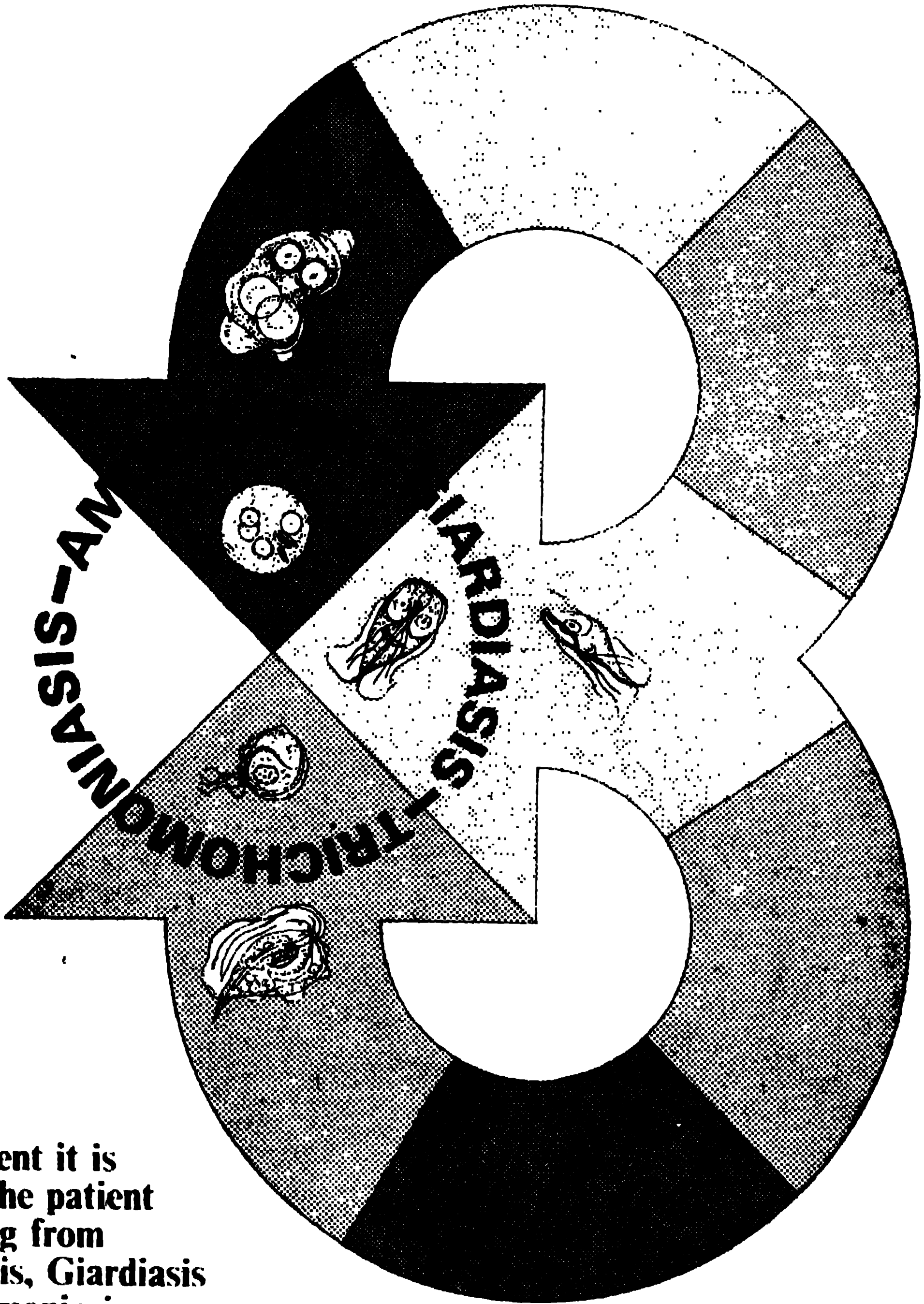

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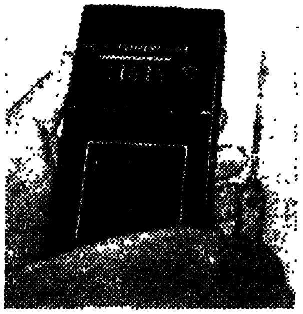

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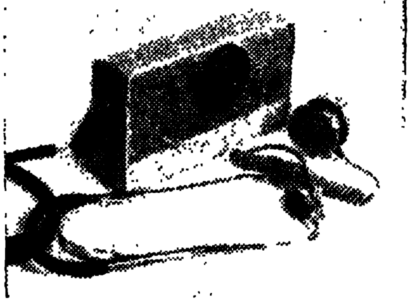

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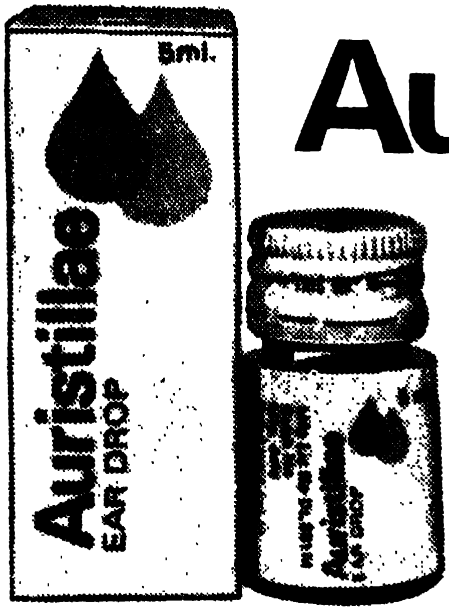

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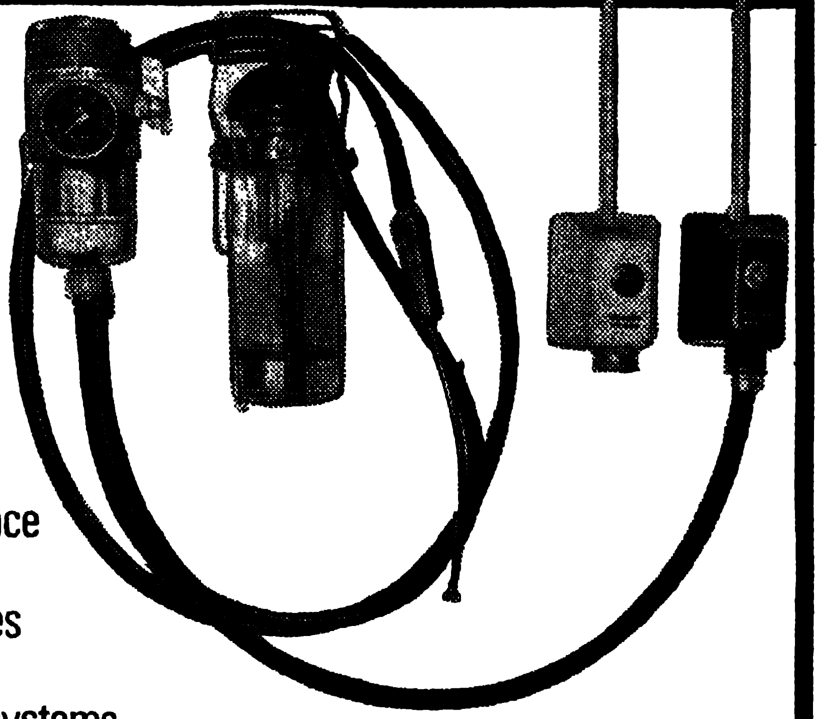

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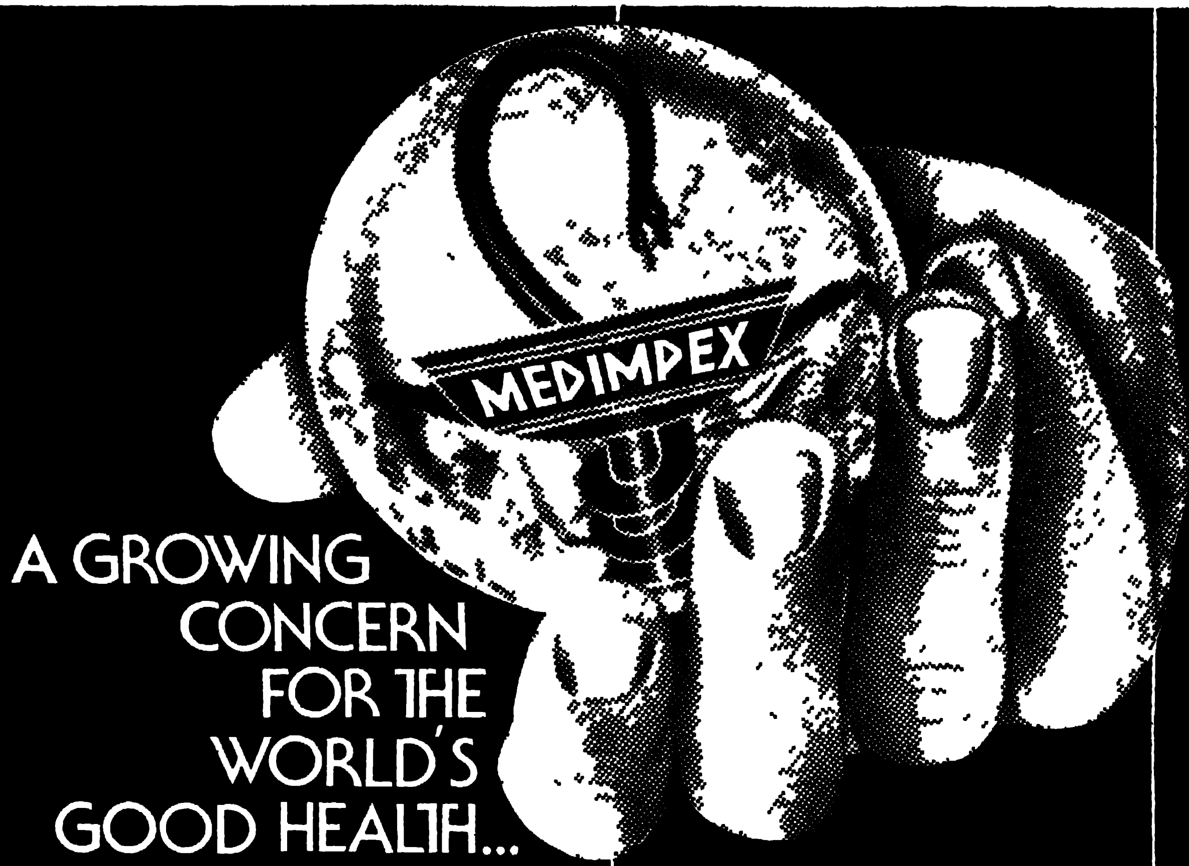
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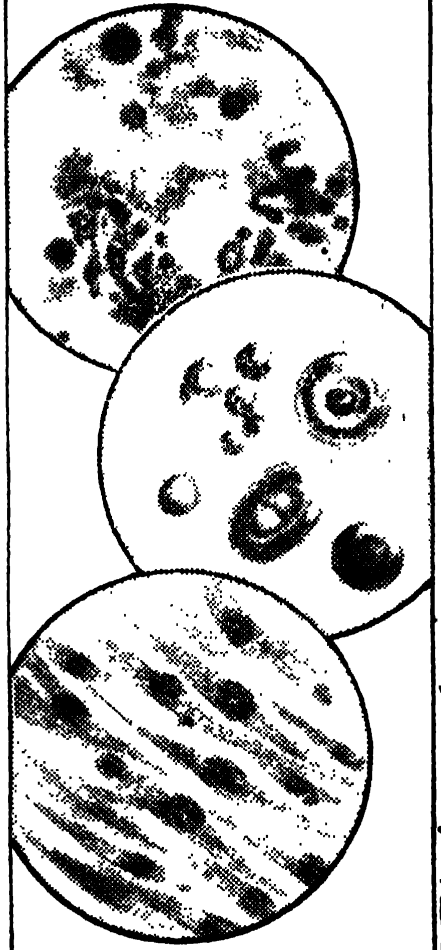

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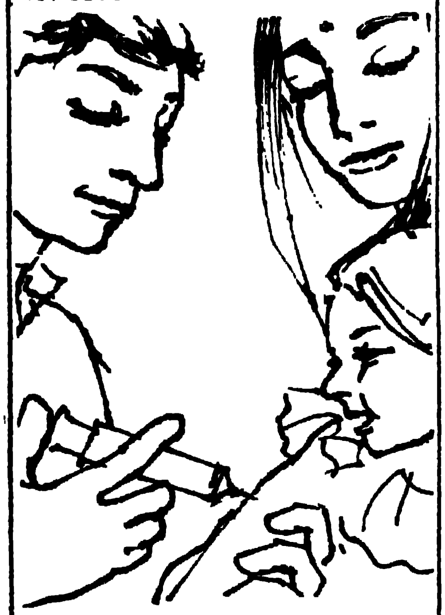

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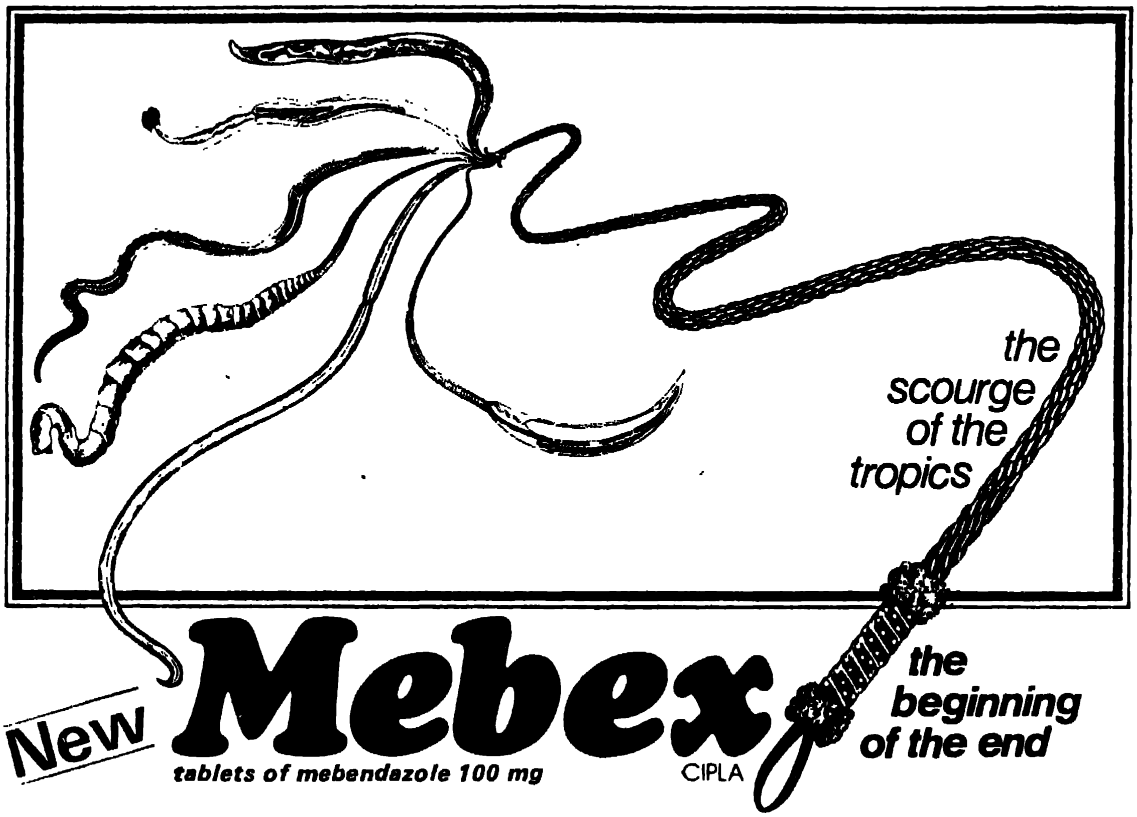
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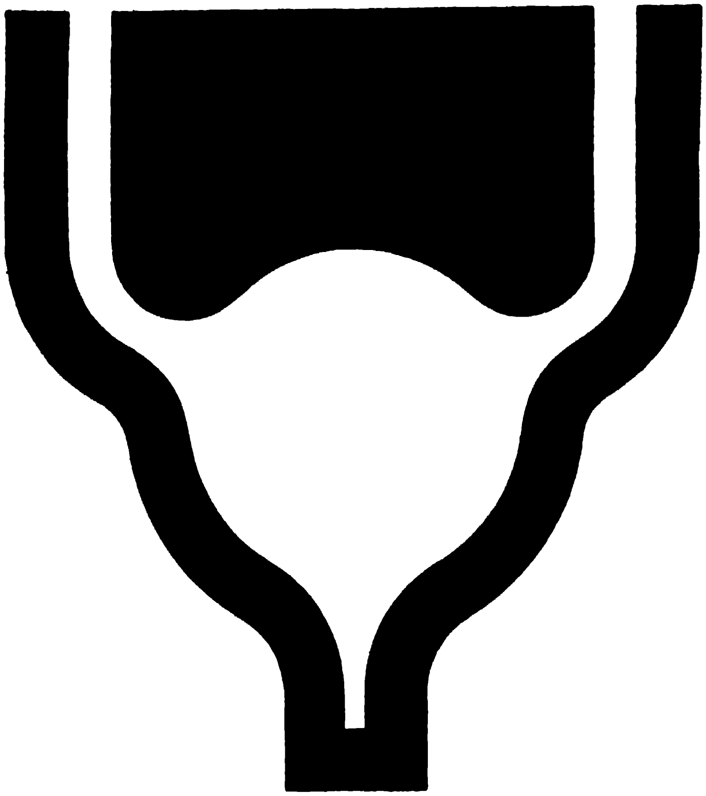

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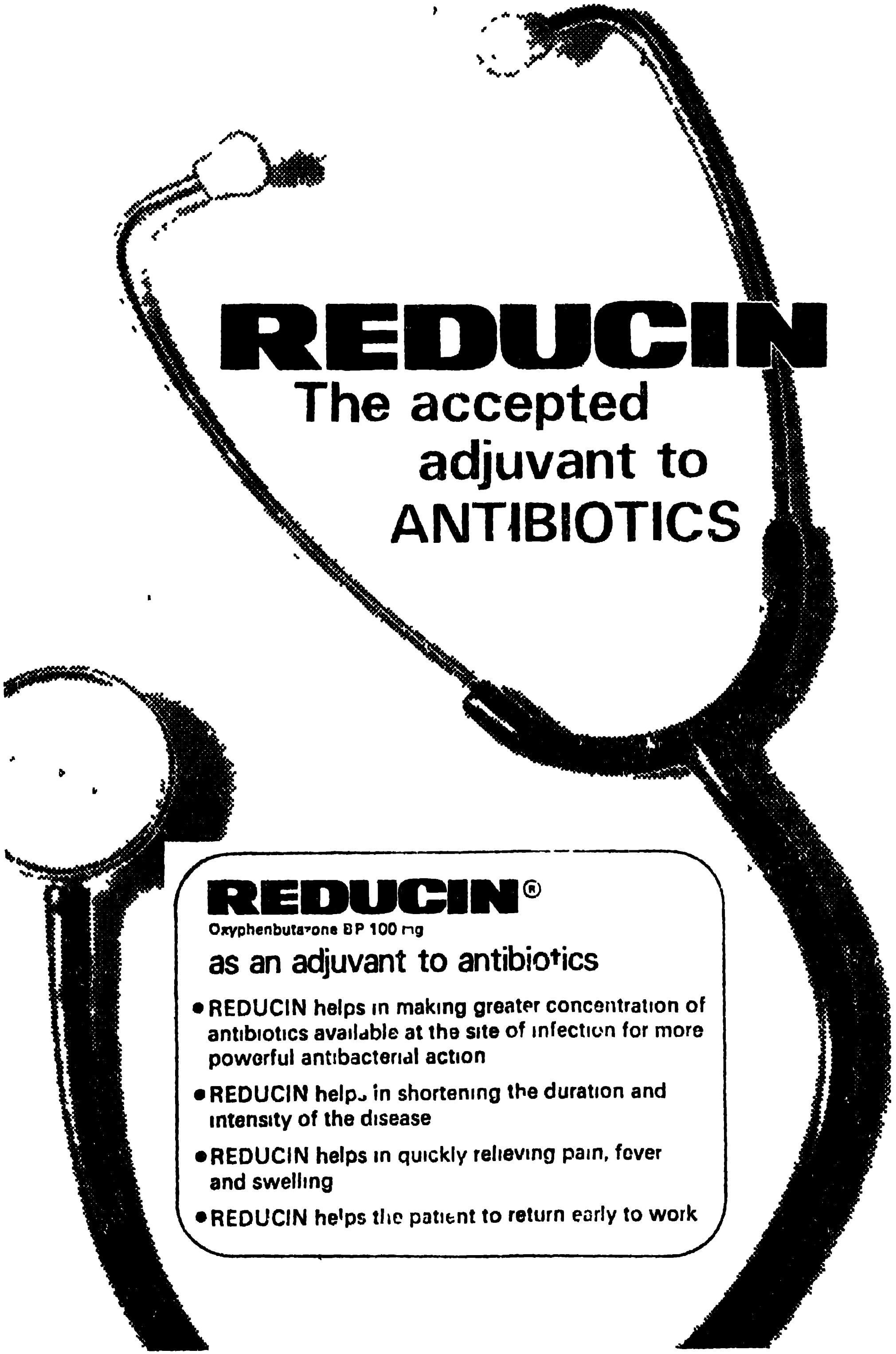

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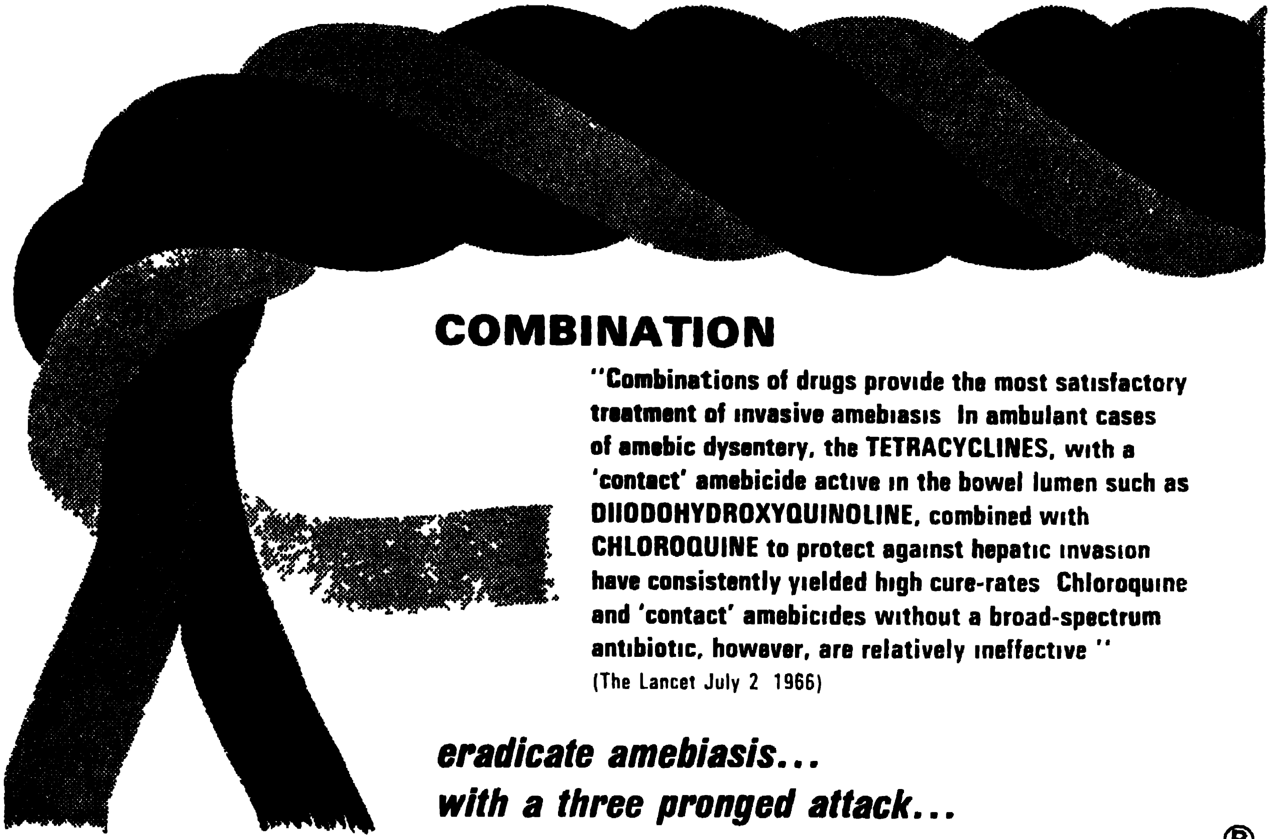

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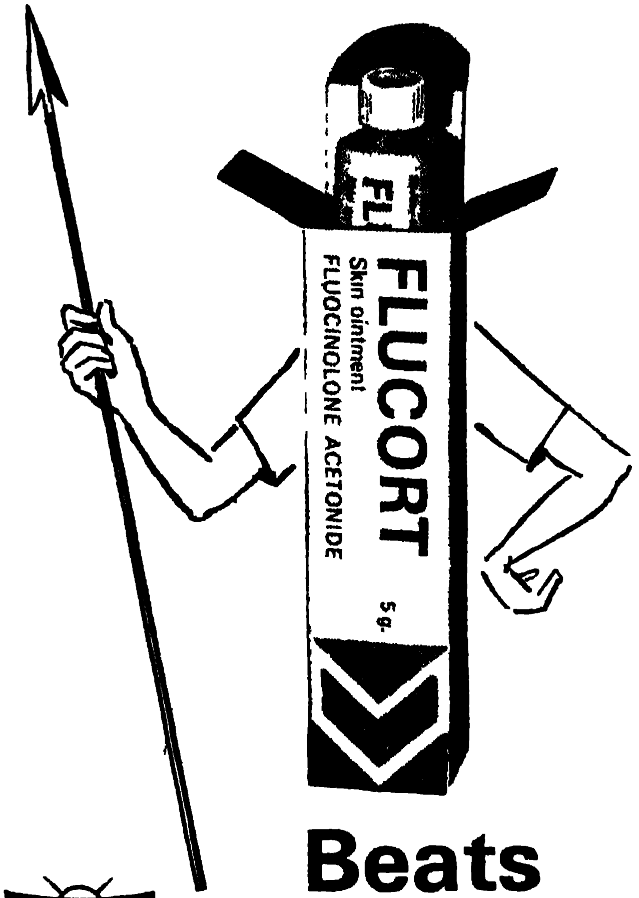

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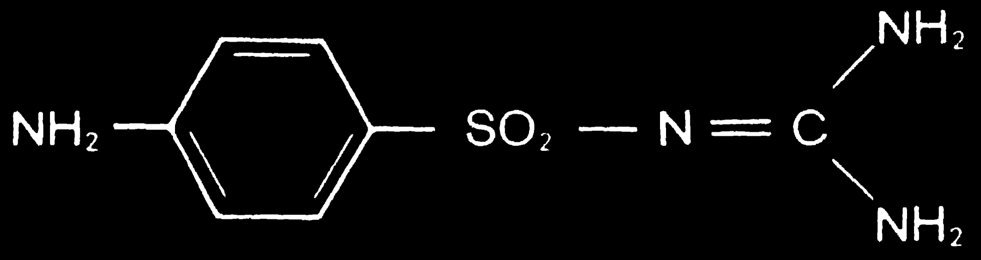

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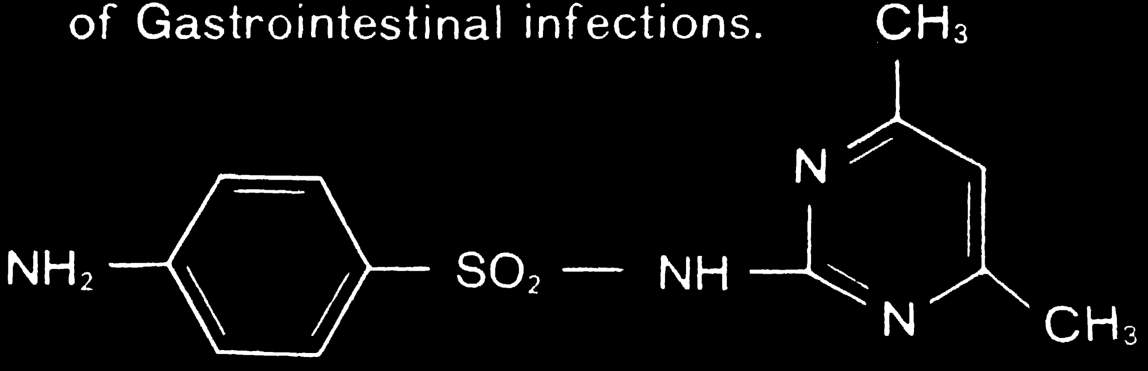

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CALCUTTA
JULY 16, 1978

ORIGINALS AND PAPERS

1

Gastric Secretory Study in Protein Calorie Malnutrition (PCM) in Adults and Correlation with Gastric Mucosal Structure, Small Bowel Microflora and Absorption

D. N. GUHA MAZUMDAR*, R. C. MITRA**, N. MITRA***, N. N. SEN****
B. D. CHATTERJEE*****

[Received for publication July 5, 1976]

Malnutrition and tropical sprue (TS) are observed in many adult patients in Calcutta. In a previous study amongst such patients the authors found it difficult to differentiate the 2 conditions clinically. Steatorrhoea, however was a prominent feature in TS patients while it was not so significant in PCM. Further, the small bowel was found to harbour a large number of coliform organisms in most of the cases of TS but only in some patients suffering from PCM (Gorbach *et al.*, 1970). During another series of study among local residents it had been observed that the gastric acid secretion was low among people belonging to lower socio-economic condition than among affluent people and that *V. cholerae* infection occurred largely in a population with impaired acid secretion (Sack *et al.*, 1972). The authors therefore, intended to study, as will be presented in this paper, the gastric secretory function in PCM among adult Bengalees and to correlate the results with the gastric mucosal structure. Bacterial content and absorptive functions of the small intestines were also studied and the results are further correlated with the gastric secretory activity.

MATERIAL AND METHOD

Fourteen Bengalee patients suffering from PCM, varying in ages between 19 and 70 years were studied in the general ward of ID Hospital, Calcutta. Of these 8 were male. Dietary history of all these patients were obtained by questionnaire method and all of them indicated grossly inadequate intake of calorie and protein in their diet for a prolonged period. Their clinical presentation was characterised by muscle wasting with oedema in the dependent parts of the body while a few had anasarca. Appropriate investigations were done to exclude the possibility of associated systemic diseases before the patients were taken up for this study and all of them fulfilled the criteria of low serum albumin level, i.e., 2 g. per cent or less. Twenty subjects of the same socio-economic group were studied as controls.

Blood samples were collected from each patient immediately after admission for the estimation of haemoglobin, serum iron, total serum proteins and albumin. Bone marrow examination was done in 11 cases. All the patients were given hospital diet

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*M.D., Assistant Professor of Medicine, Institute of Postgraduate Medical Education and Research, Calcutta

**M.R.C.P., Formerly, Research Associate, Johns Hopkins University Centre for Medical Research and Training, Calcutta

***M.D., Lecturer of Pathology, Institute of Basic Medical Science, University of Calcutta

****M.D., Ph.D., Professor of Haematology, Institute of Postgraduate Medical Education and Research, Calcutta

*****M.B.B.S., Ph.D., Assistant Professor of Microbiology, School of Tropical Medicine, Calcutta supplying 2500 calories during the course of treatment, varying between 6 to 12 weeks, and the diet contained about 150 g. of protein. They also received vitamins and iron orally during the period of treatment. Regular clinical progress and change of body weight, haemoglobin and serum albumin values were determined at frequent intervals.

Initial gastric acid secretory study was performed in all these patients within 2 to 3 days of admission. The basal gastric secretion was collected during four 15-minute periods from each patient after fasting for 10 to 12 hours, by introducing a radio-opaque nasogastric tube in the pyloric portion of the stomach and positioning it by screening. Then 50 mg. of ametazole hydrochloride was injected in the biceps and further four 15-minute period samples were collected. The total volume of the gastric secretions, their acid content and rate of production (basal and maximally stimulated) were determined. The details of the procedure adopted were same as has been described previously (Sack *et al.*, *loc. cit.*). Similar studies were done in 20 controls of the same socio-economic group. Repeat study could be done in 7 patients after 6 to 12 weeks of treatment when clinical improvement was noticed by finding the gain in body weight (from the initial level or from the lowest value attained by initial fall due to loss of oedema fluid by use of diuretics), improvement of haemoglobin values, elevation of serum albumin level, general sense of well being, etc.

Multiple gastric mucosal biopsies were taken in 6 cases selected at random from the body of the stomach by using Quinton's hydraulic biopsy tube which was being positioned under fluoroscopic control. The histology of the gastric biopsy specimens was evaluated 'blind' by one of the authors (N. M.) without any knowledge of the patient's gastric secretory status and were classified into 4 grades according to the plan of Vaish *et al.* (1965).

Faecal fat excretion, D-xylose absorption test using 5 g. xylose by mouth and Schilling test for estimating vitamin B_{12} absorption were done in these patients within a few days of admission in the hospital. Small bowel intubation was also carried out in 6 patients and specimens, obtained from different parts of the gastro-intestinal tract, were studied for micro-organisms quantitatively and qualitatively by one of the authors (B.D.C.). The details of techniques used for all these studies were the same as had been described previously (Gorbach *et al.*, 1969, 1970).

OBSERVATIONS

Generalised or localised bilateral pedal oedema was present in all the patients. Skin and hair changes of varying degrees were also present in all of them. Peripheral neuropathy was present in 3 of these cases. The oedema free body weight (measured after use of frusemide for a few days) varied between 26 kg. and 46 kg. on the initial examination. Mild to moderate degree of anaemia was present in all the cases. The mean haemoglobin level was 8.2 g. per cent (range: 4.5 g. to 12.9 g.). Serum iron level was estimated in 7 patients and the mean level was 64 μg./100 ml. (range: 14.4 to 100 μg./100 ml.). Bone marrow examination was done in 11 patients of which 7 patients showed normoblastic and 3 megaloblastic picture. Hypoproteinaemia (mean: 5.05 g./100 ml.; range: 3.74 to 5.77 g./100 ml.) and hypoalbuminaemia (mean : 1.63 g.; range : 1.32 to 2.0 g./100ml.) were present in all. Twenty-four-hour faecal fat excretion was found to be normal in all the 11 patients studied (mean: 2.74 g./24 hours; range: 0.60 to 6.63 g./24 hours), while $Co^{57}B_{12}$ absorption test was normal in all but 3 patients (12 patients studied: Mean excretion in urine: 15.34 per cent in 24 hours; range: 2.73 to 34.5 per cent). On the other hand the D-xylose absorption was abnormal (mean: 0.653 g./5 hours; range: 0.461 to 0.938 g./5 hours) in all the 10 patients tested (Table 1). Two patients died one week after admission. But the remaining 12 patients showed improvement of their general condition, body weight, anaemia and serum albumin values following hospital treatment for a period of 6 to 12 weeks.

Gastric secretory function studies—In the basal secretion no acid was detected in 9 out of 14 patients while lower rate of acid production in comparison to the mean of control cases was detected in 3 patients. On maximum stimulation by ametazole hydrochloride 6 patients still remained achlorydric and 4 others hypochlorhydric. On repeat study done on 7 patients following improvement of their condition by treatment for 6 to 12 weeks, 3 showed achlorhydria, and lowered rate of acid production in 2 others following stimulation by ametazole hydrochloride. Only 2 out of these 7 patients showed moderate improvement in their acid secretory capacity by treatment. On statistical analysis the stimulated gastric acid output (mean rate of acid production : 2.45 ± 1.03 mEq./hour) of patients suffering from PCM was found to be significantly low ($P \angle .01$) in comparison to the control group (mean rate of acid production: 7.3 ± 1.2 mEq./hour). There was no significant difference in the rate of stimulated acid production in the patients before and after therapy (Table 2).

Gastric biopsy—Mild degree of cellular infiltration of the lamina propria with little atrophy of the glands (grade II changes) was seen in gastric biopsy material (Fig. 1, H. & E., ×70; Fig. 2, H. & E.,

TABLE 1—SHOWING CLINICAL AND LABORATORY DATA OF PATIENTS WITH PROTEIN CALORIE MALNUTRITION

Case No.	Age (years)	Sex	Weight (odema free) in kg.	Haemoglobin (g.%)	Serum iron (μ g./100 ml.)	Bone marrow	Total proteins (g.%)	Albumin (g.%)	Faecal fat (24 hours collection in g.)	D-xylose absorption (5 g. dose) in 5 hours	Co^{57} B_{12} absorption (% in 24 hours)
1	35	M	34	9.6	53.5	Megaloblastic	5	1.43	0.6	0.461	8.9
2	47	M	42	9.3	57	Normoblastic	5	1.68	2.9	0.603	34.5
3	35	F	35	12.9	—	Normoblastic	4.85	2.00	2.8	0.938	22
4	55	F	28	8.4	100	Normoblastic	5.27	1.48	6.63	0.692	9.19
5*	25	M	30	8.8	100	—	4.34	1.22	—	—	19.35
6	70	F	26	6.4	—	Magaloblastic	5.43	1.00	1.32	0.533	3.94
7	55	M	41	5.8	—	Normoblastic	5	2.00	2.26	0.708	12.9
8	63	F	30	7.5	—	Normoblastic	5.32	1.59	3	0.66	13.9
9	55	M	46	8.5	72	Normoblastic	3.74	1.41	2.8	0.639	32.4
10	36	M	34	7.6	—	Normoblastic	5.7	1.6	2.32	0.878	21.2
11	55	M	38	4.5	14.4	Hypochromic	5.77	1.76	2.48	0.675	2.73
12*	19	F	26	7.5	53.5	Megaloblastic	4.4	1.32	—	—	3.08
13	50	M	34	6.6	—	—	5.6	1.7	3.2	—	—
14	50	F	27	11.05	—	—	5.3	1.8	—	—	—

*Patients expired within one week after admission

TABLE 2—SHOWING GASTRIC ACID PRODUCTION (MEAN VALUE) IN PROTEIN CALORIE MALNUTRITION IN ADULTS BEFORE AND AFTER STIMULATION WITH AMETAZOLE HYDROCHLORIDE

	No. studied	Total volume in 60 minutes (ml./hour)		Rate of acid production in 60 minutes (mEq./hour)	
		Before stimulation	After stimulation	Before stimulation	After stimulation
Before treatment	14	93±15	146±22	0.91±0.57	2.45±1.03
After treatment	7	100±19	151±28	1.48±0.69	5.64±2.43
P value (comparison of values before and after treatment)		Not significant	Not significant	<0.01	Not significant
Control (same socio-economic group)	20	89±11	143±12	1.8±0.6	7.3±1.2
P value (comparison of cases before treatment and those of control)		<0.05	Not significant	Not significant	<0.01
Control (higher socio-economic group, Sack *et al.*, 1972)	12	110±12	228± 8	4.9±0.8	21.0±1.8

×170) in 3 patients (caes 3, 6 and 13). Of these one patient (case 13) showed normal rate of stimulated gastric secretion initially, improving markedly after treatment. Two other patients showed the values less than that of control; but of these repeat study done in one, showed value higher than that of control.

Moderate atrophic gastritis (grade III changes) characterised by varying degree of cellular infiltration of the lamina propria with moderate atrophy of gastric glands (Fig. 3, H. & E., ×70; Fig. 4, H. & E., ×170) were found in 2 cases (cases 1 and 10). Initial value of the rate of stimulated gastric secretion was lower than control value in both of these 2 cases and repeat study done in one case (case 1) after treatment showed some improvement of the value but it did not reach the control level.

Severe atrophic gastritis characterised by severe atrophy of the mucosa with disroted glands and marked cellular infiltration (grade IV changes) was seen (Fig. 5, H. & E., ×70; Fig. 6, H. & E., ×170) in one case (case 4). This patient showed absence of acid secretion by maximal stimulation with ametazole hydrochloride initially and on repeat study following treatment.

Intestinal bacterial flora—Of the 6 patients studied 4 cases (cases 4, 8, 10 and 11) had high count of coliform organisms (10^6 to 10^8 per ml.) in the jejunum and ileum. Of these 3 patients were achlorhydric and one hypochlorhydric even after maximum

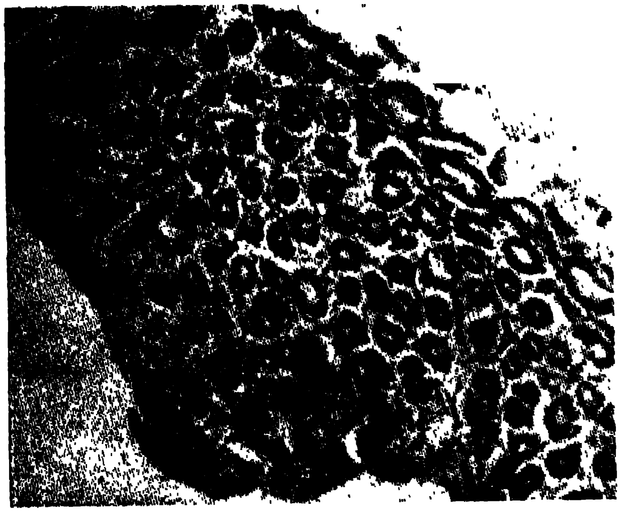

Fig. 1—Showing Microphotograph after Gastric Biopsy with Mild Degree of Cellular Infiltration of the Lamina Propria (Grade II Changes)

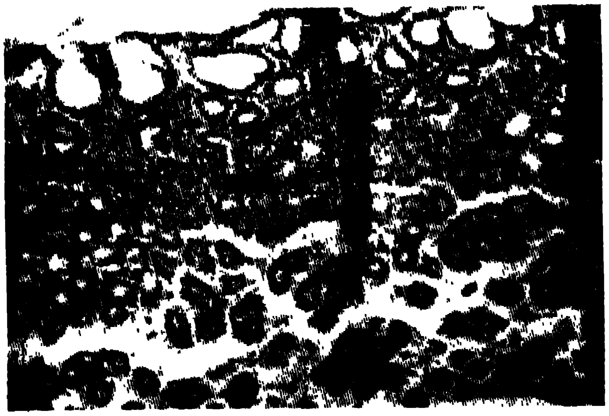

Fig. 3—Showing Microphotograph with Moderately Atrophic Gastric Glands and varying Degree of Cellular Infiltration in Lamina Propria (Grade III Changes)

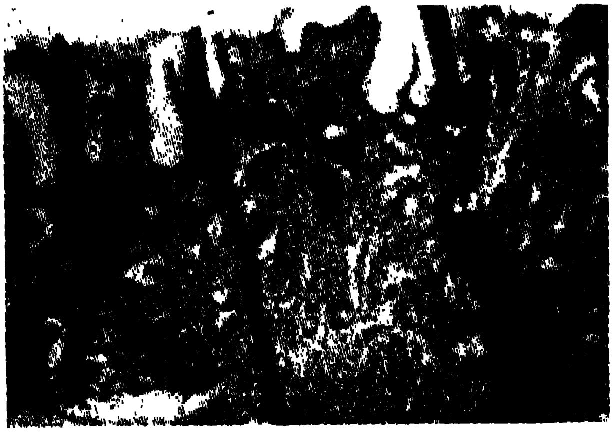

Fig. 5—Showing Microphotograph with Severe Atrophy of Gastric Mucosa with Distorted Glands and Marked Cellular Infiltration (Grade IV Changes)

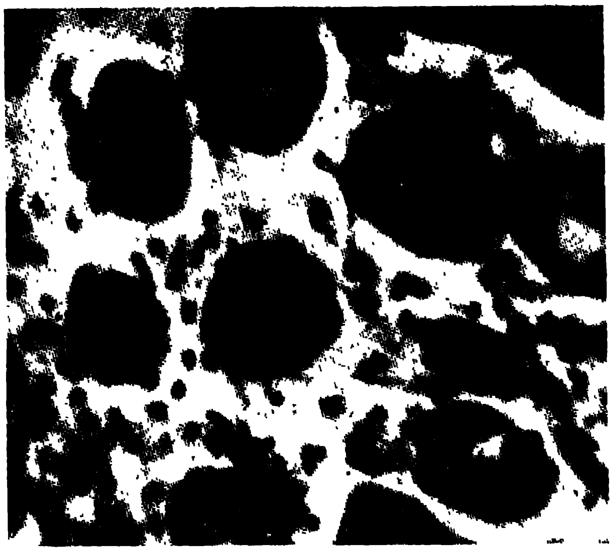

Fig. 2—Showing Microphotograph after Gastric Biopsy with Grade II Changes

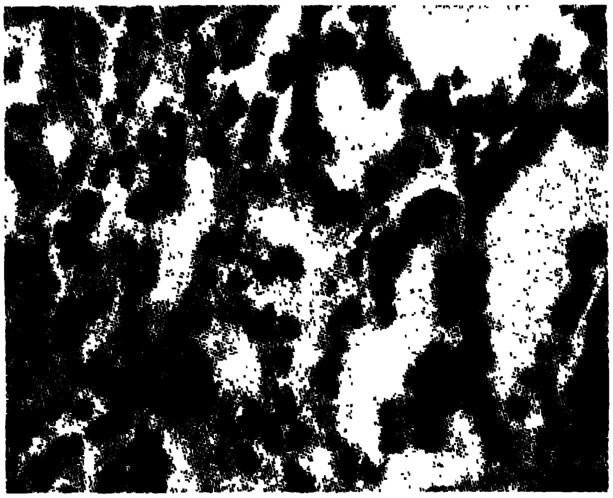

Fig. 4—Showing Microphotograph with Grade III Changes

Fig. 6—Showing Microphotograph with Grade IV Changes

stimulation with ametazole hydrochloride and remained so even after treatment. Of the 2 patients having normal bacterial count one was achlorhydric while the other had similar rate of acid secretion (stimulated) as the control.

DISCUSSION

The present study demonstrates a significant lowering of gastric secretory activity (even after maximum stimulation by ametazole hydrochloride of patients suffering from PCM than of control subjects of the same socio-economic group. Further, this decreased secretory function persisted for a long time as it was not found to have reverted to control values even after treatment for 6 to 12 weeks though their general condition, haemoglobin values and serum albumin levels improved. Vaish *et al.* (*loc. cit.*) observed frequent occurrence of hypochlorhydria among their TS patients in South India. But as none of the patients in the present series did have any steatorrhoea and only a few had abnormal B_{12} absorption (3 out of 11 cases studied), while all of them had very low serum albumin levels and gave a long history of deficient intake of proteins and calories in their diet, the possibility of tropical sprue as the cause of decreased secretory activity of stomach could be excluded.

A good correlation was observed between gastric biopsy findings and gastric secretory activity following stimulation by ametazole hydrochloride in the cases of the present series. A similar correlation was previously observed by many workers (Wood *et al.*, 1948; Funder and Weiden, 1952; Joske *et al.*, 1955) between the results of augmented histamine test and gastric biopsy findings. However, the aetiology of gastric mucosal changes leading to decreased secretory activity is not yet clear. It is interesting to note that the mean value of the rate of acid secretion following stimulation by ametazole hydrochloride (7.3±1.2 mEq./hour) among control subjects belonging to the low socio-economic strata of Bengalee population was also much lower than in people belonging to the higher socio-economic group (21.0±1.8 mEq./hour) (Sack *et al.*, *loc. cit.*). Possibly consumptin of low protein diet by the former group of people has something to do in producing gastric mucosal changes which may subsequently produce decreased secretory activity. Though some of the patients in the present series had iron deficiency anaemia initially, this was possibly not the main cause of gastritis in the patients. All these patients had improvement of their anaemia following treatment, but majority of them maintained lowered secretory activity. Further, the rôle of anaemia in producing gastritis and/or achlorhydria is debatable. Though a few workers (Davidson and Markson, 1955; Lees and Rosenthal, 1958) are of opinion that iron deficiency as such can produce chronic gastritis and achlorhydria, others (Coghill, 1960; Ikkala and Siurala, 1964) disagree with this hypothesis.

Some correlation could be found between the decreased gastric secretory activity and increased bacterial content of the gut from the study of intestinal bacterial flora of 6 of these cases of PCM. Five of them were either achlorhydric or hypochlorhydric following stimulation by ametazole hydrochloride while 4 had high bacterial count in their gut. It is well known that achlorhydria produces contamination of small bowel by colonic organisms (Goldstein *et al.*, 1962). But mere presence of these organisms does not necessarily have any significance. Patients with achlorhydria may harbour large number of colonic bacteria in the upper small bowel and remain entirely asymptomatic. The host apparently lives in complete harmony with the commensals. Under some circumstances, however, these organisms do not remain harmless commensals (Gorbach, 1967). Baker (1972) reported that he did not find in the South Indian people any difference in the bacterial population of the upper part of the gut in TS patients and functionally normal controls, but he agreed that 5 out of his 6 control cases had D-xylose malabsorption and they all had minor abnormality on intestinal biopsy. Though Mata *et al.* (1972) observed high bacterial count in the gut of 13 children suffering from PCM and similar finding in 4 control subjects in Guatemala, they agreed that bacterial overgrowth is as common a finding in normal subjects as mucosal morphological abnormality (Sprinz *et al.*, 1962; Klipstein *et al.*, 1968) and D-xylose malabsorption (Klipstein, 1970; Keusch *et al.*, 1970) in some normal subjects of certain tropical areas. The observation of abnormal D-xylose absorption in all the patients of PCM in the present series and similar findings with abnormal jejunal structure observed previously (Gorbach *et al.*, 1970; Banwell *et al.*, 1970) make one feel that the high degree of bacterial contamination of the gut is responsible for this. It is worthwhile to determine further the gastric secretory activity of normal persons of different nutritional status living in the tropics and its influence in determining the bacterial population of the upper part of the gut and to correlate these with the occurrence of tropical enteropathy as described by Baker and Mathan (1972) or subclinical malabsorption of the tropics as described by Lindenbaum *et al.* (1972) or to find out whether any causal relationship exists between the former and the latter (Keusch, 1972).

The observation of variable bone marrow picture, serum iron level and B_{12} absorption but presence of normal faecal fat excretion in the patients suffering from PCM in adults studied in the present series corroborated similar findings observed by Gorbach *et al.* (1970).

SUMMARY

Fourteen patients suffering from PCM in adults had been studied for a period of 6 to 12 weeks. None had any steatorrhoea while Schilling test was normal in all but 3. But D-xylose absorption was abnormal in all. Initial basal and maximal gastric secretory activity following administration of ametazole hydrochloride were ascertained in all the patients and could be repeated in 7 after treatment. The stimulated acid output of these patients were significantly low (6 cases had ametazole hydrochloride fast achlorhydria). There was no significant difference in the stimulated acid production in patients before and after therapy. Gastric biopsy done in 6 patients showed grade II changes in 3, grade III changes in 2 and grade IV changes in one. A fair correlation was obtained from gastric secretory activity and gastric biopsy finding. Bacterial content of upper bowel was determined in 6 patients and high coliform count (10^6 10^8 per ml.) was found in 4. All of them were either achlorhydric or hypochlorhydric following stimulation by ametazole hydrochloride.

ACKNOWLEDGMENT

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Histalog (Lilly) brand of ametazole hydrochloride was used in the study.

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2

Lactation for Delaying Re-establishment of Menstruation and Its Possible Role in Family Planning

(MRS.) SUSHILA RATHEE*, TRIPTA YADAV**

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The general belief amongst women that by not weaning their babies they are less liable to become pregnant again (Hammond, 1952), has caused lactation to be prolonged indefinitely (Foss and Short, 1951). There is a long list of such series, wherein it is stated that prolonged lactation was the most common measure employed all over the world to prevent conception before the introduction of the various modern contraceptive techniques. But conception during lactation is a well-

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Department of Obstetrics and Gynaecology, Medical College, Rohtak
*M.D., Associate Professor
**M.D., Ex-Postgraduate Student

known occurrence although it is with very low and variable percentage.

Peckham (1934) observed that 30 per cent post partum women became pregnant within one year and approximately 2/5ths of them were still lactating; one tenth (3 per cent) conceived without menstruating.

Baxi (1958) states that the implication of diminishing inhibitory influence of lactation on the resumption of menses is obvious, for the resumption of cyclic ovarian activity cannot be delayed indefinitely, by prolonging the period of nursing.

The custom of prolonged lactation in this part of the country because of economic reasons and superstitions, the present emphasis on family planning and the reluctance of the people to accept the modern contraceptive methods formed the basis of this study.

MATERIAL AND METHOD

Random studies of 375 cases of lactational amenorrhoea, attending the Outpatients' Department of Medical College Hospital, Rohtak and its associated centres, were undertaken. The duration of lactation, amenorrhoea and spacing of births and their relation to parity, age, income, social status and the time of starting supplementary feeds were studied. None of the patients under study used any contraceptives.

OBSERVATIONS

All the women taken up for study under this project were still lactating and had not menstruated after delivery. So, their period of lactation and amenorrhoea were the same. They were lactating for a variable period, between 3 months and 3 years with 15.9 months as the mean duration of amenorrhoea and lactation. Since the sample study did have a large number of such women who had already lactated for a considerable length of time (which was the main purpose of study, namely to evaluate the effects of prolonged lactation), no follow-up was carried out. As a result of this lack of follow-up there was an apparent increase in the number of women in the group who had lactated for under 10 months.

Table 1 shows that there was a gradual increase in the duration of amenorrhoea as the age advanced. It also shows that the most productive years were between 20 and 30 years, constituting more than 75 per cent of the series.

TABLE 1—SHOWING RELATIONSHIP OF LACTATION AMENORRHOEA WITH AGE

Age in years	No. of patients	Mean duration of amenorrhoea in months
15-19	16	10.7
20-24	169	13.5
25-29	114	15.7
30-34	46	15.9
35-39	22	20.8
40-45	8	19.2

The parity of the patients varied from primi para to 7th para and no definite relationship could be established between parity and lactation amenorrhoea as is clear from Table 2. However, there was a clearly higher period of amenorrhoea in multiparous women.

TABLE 2 SHOWING RELATIONSHIP OF LACTATION AMENORRHOEA WITH PARITY

Parity	No. of patients	Mean duration of amenorrhoea in months
1	90	12.4
2	106	13.8
3	71	16.4
4	42	15.5
5	23	13.9
> 5	43	19.5

Table 3 shows relationship of lactation amenorrhoea with family income.

TABLE 3 SHOWING RELATIONSHIP OF LACTATION AMENORRHOEA WITH FAMILY INCOME

Income per month per family	No. of cases	Mean duration of amenorrhoea in months
Below Rs.400/-	244	14.2
Rs.401-800/-	125	15.7
Above Rs.800/-	6	9.0

Table 4 shows that earlier the partial weaning (supplementary feeds) was started lesser was the

TABLE 4—SHOWING RELATIONSHIP OF LACTATION AMENORRHOEA WITH THE TIME OF STARTING SUPPLEMENTARY FEEDS

Time of starting supplementary feeds	No. of cases	Mean duration of amenorrhoea in months
Before 6 months	19	10.4
6-12 months	63	16.6
After 12 months	78	24.3

duration of amenorrhoea and *vice versa*. It also shows that only 160 out of 375 mothers started supplementary feeds. As for spacing, only 7.8 per cent had an interval of less than 2 years between succeeding births and none less than one year, 54.7 per cent had the next pregnancy between 2-3 years, 34.3 per cent had 3 to 4 years and only 3.2 per cent had an interval of more than 4 years. Clinical examination revealed that 96.3 per cent cases had hyperinvoluted uterus and only 3.7 per cent had normal uterus, indicating thereby that a vast majority of them were not prepared for conception.

DISCUSSION

It has been observed that the period of lactation gets prolonged in women of higher age group (Table 1) as was described by Kamal *et al.* (1969) and it is also supported by the WHO (1954) study.

The mean duration of amenorrhoea in the present series was 15.9 months. It agrees with other studies conducted on rural and backward communities (Peters *et al.*, 1958; Potter, 1963; Minawi and Foda, 1971). It is apparent from Table 3 that the duration of amenorrhoea was almost the same in low and middle income groups. It is so probably because all of them had rural background and similar food fads, taking the same type of diet. The higher income group had lower duration of lactation amenorrhoea. However, Malkani and Mirchandani (1960) found that in 282 lactating women, the mean duration of amenorrhoea was 5½ months. It was on the lower side, because the patients under study had an urban background. It was probably the reason for a lower duration of lactation amenorrhoea in the present series (9 months) in the higher income group as compared to the lower and middle income groups. This confirms the view that lactation amenorrhoea is an attempt to conserve energy on the part of nature for better nourishment of the baby and saving the loss of blood from the mother, thereby prolonging the interval between child births and making the mother more fit to bear the next pregnancy (Gioiosa, 1955). As has already been pointed out, the custom of weaning the babies is quite late in the area under study, as can be seen easily that only 160 out of 375 had started supplementary feeds (Table 4).

Although no definite relationship could be established between parity and duration of lactation amenorrhoea, generally speaking a trend towards longer duration was noticeable in the multiparous women. Salber (1965) also could not find any definite relationship with parity whereas Das (1966) found that the average period of amenorrhoea was higher in multiparous women.

It has also been seen that earlier the supplementary feeds were started, lesser was the duration of amenorrhoea. Similar observations were also made by McKeown and Gibson (1954) as well as by Sharman (1951).

It was also seen that 96.3 per cent of the cases of the present series had hyperinvoluted uteri and only 3.7 per cent had normal multiparous uteri, indicating thereby that the uteri of a large number of lactating amenorrhoeic women under study, were not favourable for further conception at the time of examination. This was also confirmed by comparatively long spacing of births found in them. Similar were the findings of Udesky (1950) and Minawi and Foda (*loc. cit.*), who also found uterine hyperinvolution in cases of prolonged lactation.

It can be concluded that lactation does provide some protection against further conception without the use of any contraceptives, but it is not infallible and the chances of failure rate are high, since it cannot be predicted as to who is going to conceive and when.

The birth interval though prolonged, is highly variable (from one to several years). So, it cannot be recommended as a method of birth control, although it is one of the well known natural barriers to conception for variable periods in different individuals.

SUMMARY

A total of 375 cases of lactation amenorrhoea was studied at random. The mean duration of amenorrhoea was 15.9 months. The period of amenorrhoea was higher in older and multiparous patients. There was no difference in the period of amenorrhoea in the low and middle income groups probably because of similar background and food habits. It was lower in the higher income group. The earlier the (partial) weaning the lesser the amenorrhoea. 96.3 per cent of these cases had hyperinvoluted uteri and as such unfavourable for conception. The birth interval was variable (one to several years).

So, lactation does act as a barrier to further conception by delaying ovulation but it is not infallible and as such unreliable for family planning.

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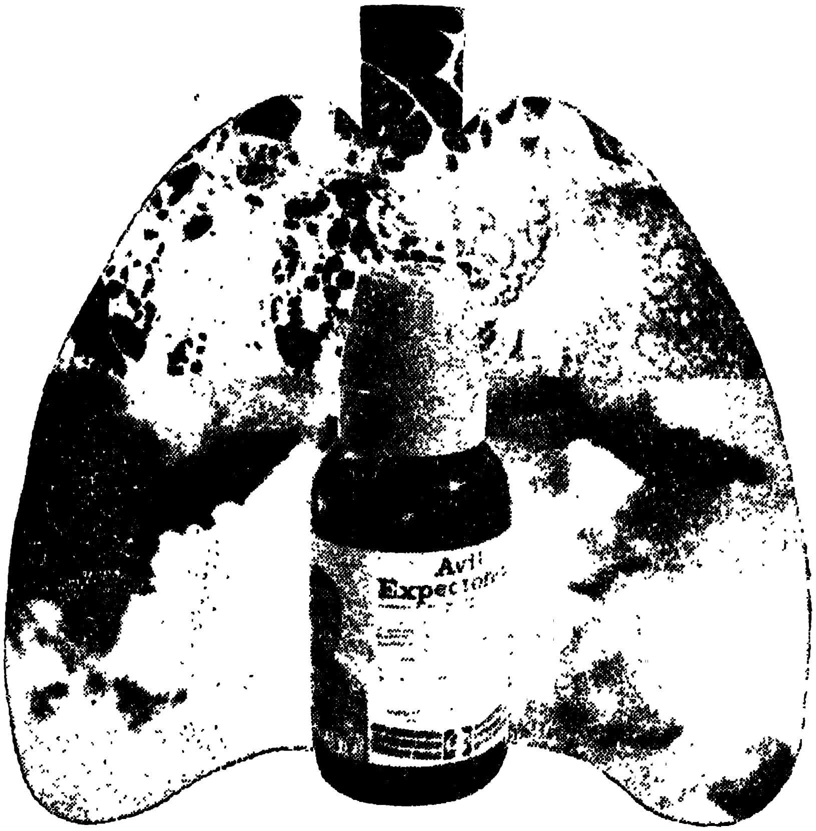

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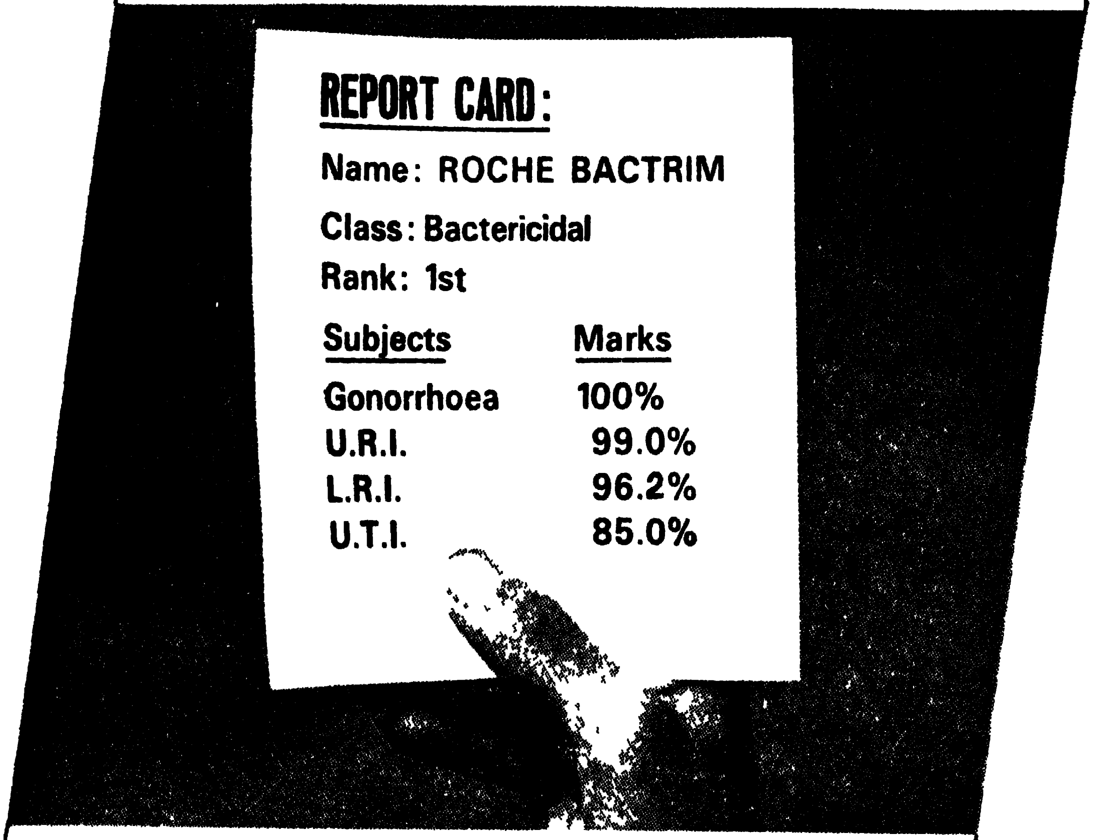

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3

Female Fertility Status and Clomiphene Regulated Ovulation for Donor Artificial Insemination

R. RAJAN*

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Artificial insemination with donor semen (AID) is an attractive alternative for the entire problem of irreversible male infertility. Presently, AID has become more acceptable, with fewer adoptable babies available following legalisation of abortion. However, successful insemination depends on the use of fresh semen, proper technique of insemination, accurate evaluation of the female fertility status and proper timing of ovulation.

The present study is designed to establish that the careful evaluation of the fertility status of the woman and regulation of her ovulation with clomiphene citrate will enhance the success rate for AID. The three schedules followed for donor insemination are detailed and compared with reference to the pregnancy rate.

MATERIAL AND METHOD

Seventy-seven couple, who volunteered for AID, for reasons of irreversible male factors, were included in this study. The male infertility problem was evaluated in the following order: Clinical history, physical examination, semen analysis (at least 2 samples with a period of abstinence for 5 days) and bilateral testicular biopsies. Azoospermic men with irreversible testicular damage, those with reversible lesions, but not willing for further investigations and treatment, and oligospermic men in whom other treatments have failed were the types of cases included in this series.

The couple were detailed about the method of AID and a written consent was obtained from both partners. Insemination was done with fresh semen, collected within 1 to 2 hours of the procedure. Young healthy donors who were of above average intelligence were selected for this purpose. Same donor was not used repeatedly.

AID was done twice or thrice in a particular cycle, in the first half, nearer to the mid cycle phase; or timed with the help of basal body temperature chart (BBT). With the patient in the dorsolithotomy position, the semen was sprayed on to the cervical os and a few drops were injected into the cervical canal. The patient was kept in that position for about 30 minutes.

Even though 77 couple registered for this programme, only 57 reported regularly, at least for 3 cycles, and hence the rest were eliminated from this study.

Schedule I—Thirty-one couple were included in this study in whom AID was attempted before a preliminary investigation of the female. The duration of menstrual cycle was taken into consideration in calculating the days of insemination. Insemination was done usually on day 9, 11 and 13 of a 28-32 days' cycle. Temperature chart, as a parameter for ovulation detection and timing of insemination, was not used.

Schedule II—Nineteen couple were included in this schedule. The female evaluation was done in the following manner: Thorough physical examination, endometrial biopsy in the premenstrual phase (for evidence of ovulation), tubal insufflation test (for evidence of tubal patency) and any other indicated investigations were carried out. If any female factor was detected, attempts were made to rectify the defect. All these patients were maintaining a basal body temperature (BBT) chart which enabled the proper timing of insemination in relation to ovulation. Insemination was timed on alternate days for 2 days, just prior to the thermal shift.

Schedule III—Seven couple in whom the female evaluation revealed no abnormalities and 3 attempts at insemination failed were subjected to controlled ovulation with clomiphene citrate. From the day 5 to 7 of the cycle, 100 mg. (2 tablets) of clomiphene

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Department of Obstetrics and Gynaecology, Medical College Hospital, Kottayam
*M.B.B.S., M.D., D.G.O., Assistant Professor

citrate was given daily for 5 days. Small doses of oestrogen therapy (0.05 mg. of ethinyl oestradiol) was started from the last day of clomiphene treatment and given daily for 7 days. BBT was maintained which indicated the time of ovulation. Since ovulation usually occurred 5 to 10 days after completion of clomiphene treatment, days 5 and 7 seemed optimal for insemination.

OBSERVATIONS

The various testicular lesions responsible for infertility are given in Table 1. The duration of sterility ranged from 2 years to 15 years with a mean of 5.4 years. The female partners were between 21 and 39 years of age, with a mean of 29.8 years.

TABLE 1—SHOWING TESTICULAR PATHOLOGY IN 77 MALES

Testicular pathology	No. of cases
Tubular aplasia (Sertoli's cell only syndrome)	20
Obstructive azoospermia (normal spermatogenesis with azoospermia)	15
Tubular hyalinisation	12
Spermatogenic arrest	11
Atrophic small testicles with azoospermia (biopsy not taken)	7
Klinefelter's syndrome (small hyalinised tubules with Leydig cell hyperplasia seen in clumps)	4
Bilateral cryptorchidism	3
Mixed pattern (tubular aplasia, hyalinisation and arrest)	3
Hypoplastic tubules (germinal cell hypoplasia with oligospermia)	2
Total	77

Conception rate—The incidence of conception following AID is shown in Table 2. AID was successful in 32 out of 57 couple who reported for treatment regularly (56.14 per cent). The conception rate varied depending upon the schedule followed. More number of pregnancies were recorded in schedule II (68.50 per cent) than in schedule I (51.60 per cent), indicating that evaluation of female factors gave better results for AID. Out of 7 patients who did not conceive in spite of female evaluation, 42.80 per cent conceived following ovulation regulation by clomiphene citrate (schedule III).

TABLE 2 SHOWING CONCEPTION RATE FOLLOWING AID

Schedule	No. of cases	Successful pregnancy
I	31	16(51.60%)
II	19	13(68.50%)
III	7	3(42.80%)
Total	57	32(56.14%)

Treatment cycles—The incidence of insemination cycles is shown in Table 3. Thirty-two of the 57 patients became pregnant during a total of 127 treatment cycles, with the number of attempts ranging from 1 to 10 months for a particular patient. Conception was delayed in schedule I with a mean treatment cycle of 5.25, when compared to schedule II (mean treatment cycle, 3.27) and schedule III (mean treatment cycle, 1.30). These data suggested that female evaluation and ovulation regulation with clomiphene citrate, in addition to improving the conception rate, promoted quicker conception within a few cycles of exposure.

TABLE 3—SHOWING INCIDENCE OF INSEMINATION CYCLES

Schedule	No. of pregnancies	Total cycles* required for pregnancy	
		Mean	Range
I	16	5.25	1—10
II	13	3.27	1—10
III	3	1.30	1—2

*32 patients became pregnant during a total of 127 treatment cycles

Pregnancy rate in relation to treatment cycles—Pregnancy rate in relation to treatment cycles is shown in Table 4. If female partners were investigated prior to insemination (schedule II), 76.92 per cent of those who conceived did so within the first three cycles; whereas the rate is only 31.30 per cent when AID was attempted without female evaluation (schedule I). It can be inferred that the results of AID can be quickly assessed within 3 treatment cycles if schedule II was followed. And if a woman failed to conceive in 3 cycles, ovulation regulation with clomiphene citrate can be tried, the results of which can be realised within 1 to 3 treatment cycles. Two out of 3 patients who conceived with clomiphene citrate treatment did so in the first cycle.

The basal body temperature charts of different patients were studied to demonstrate the biphasic thermal shift, as an evidence of ovulation. Sustained rise of temperature following the luteal phase is suggestive of pregnancy. Clomiphene

TABLE 4—SHOWING INCIDENCE OF PREGNANCY RATE IN RELATION TO TREATMENT CYCLES

Schedule	Pregnancy rate in relation to the treatment cycles			
	I cycle	III cycles	VI cycles	X cycles
I	12.50%	31.30%	56.30%	100.00%
II	38.46%	76.92%	84.61%	100.00%
III	66.66%	100.00%	—	—

citrate, being a thermogenic product, the basal body temperature will remain elevated during the treatment period of 5 days.

Outcome—The outcome of pregnancy in the 32 patients followed AID were as follows (Table 5). Thirteen women delivered normal healthy babies of which 3 were by caesarean sections. Twelve were pregnant at the time of this report, pregnancy ranging from 8 to 36 weeks. There were 2 cases of foetal anomalies. Three patients aborted in the first trimester, and one had a stillbirth. One case was lost to follow-up.

TABLE 5—SHOWING PARTICULARS OF PREGNANCIES FOLLOWING AID

Particulars of pregnancy	No. of cases
Normal delivery (healthy babies)	10
Caesarean section (healthy babies)	3
Abortion (first trimester)	3
Stillbirth (aetiology not known)	1
Foetal anomaly	2
Pregnancy continued (8 weeks to 36 weeks)	12
Particulars not known (not reported after 3rd month of pregnancy)	1
Total	32

DISCUSSION

Donor insemination with fresh semen usually gives satisfactory results (Behrman, 1959; Haman, 1959; Langer *et al.*, 1969). The success rate is variously reported as 37.5 per cent (Rajan, 1976), 39 per cent (Rajan, 1975), 52 per cent (Raboch and Tomasek, 1967) and 56 per cent (Ulstein, 1973). However, when AID was attempted after investigeting the female partner, better results were recorded with a conception rate ranging from 72.70 per cent (Rajan, 1978) to 78 per cent (Goss, 1975). Even after female evaluation, accurate timing of ovulation may be difficult, and in such situations induction and regulation of ovulation with clomiphene citrate might improve the results of AID. Klay (1976) reported a pregnancy rate of 94 per cent with clomiphene regime.

While other criteria for AID, namely, quality of semen and method of insemination remain constant, the success rate will depend on the female fertility status and the proper timing of ovulation. Fresh semen was used for the 57 patients and the method of insemination was also same for all. They were divided into 3 different schedules. In the schedule I, were included 31 patients whose fertility status was not evaluated, nor BBT was recorded to diagnose ovulation and time of insemination, 51.60 per cent of them conceived, taking 5.25 treatment cycles on an average. Out of those who conceived, only 31.30 per cent did so within 3 months of exposure.

In the schedule II, there were 19 patients, in whom a female factor was completely ruled out by detailed investigations. They maintained a BBT chart to time insemination. This approach had considerably improved overall results of AID; 68.50 per cent conceived during a mean of 3.27 treatment cycles and 76.92 per cent of conceptions were within the first 3 treatment cycles.

These improved results, in terms of high pregnancy incidence and decrease in the total number of treatment cycles required, signify the importance of evaluation of female fertility status before attempting AID. The results are comparable to those of Beck (1974), who believes that neither AID nor artificial insemination husband (AIH) should be attempted until the wife's fertility status has been evaluated. She should be free from any obvious cervical, uterine or tubal factors that might result in infertility. Selection of patients free from any infertility factors and proper diagnosis and timing of ovulation with BBT are the two factors responsible for the greater success. This approach relieves the couple of the emotional tension of repeated failures and the financial strain of repeated visits. The physician is also benefited by this quicker improved results.

However, even after the female factors are ruled out, some women fail to conceive by 3 or more attempts. This is due to the difficulty in accurate determination of ovulation by BBT and proper timing of insemination. The difficulty in predicting the time of ovulation has led to attempts at inducing ovulation medically in patients undergoing AID. Clomiphene citrate in a dose of 100 mg. for 5 days was used to induce ovulation. Of the 7 women treated, 3 conceived within 2 treatment cycles. A small dose of oestrogen (0.05 mg. ethinyl oestradiol) was given during the treatment cycle, in order to counter the antifertility effect of clomiphene citrate on the cervical mucus. It can be inferred that, if a woman with normal fertility status fails to conceive by 3 attempts at AID, she should be subjected to ovulation induction by clomiphene citrate Clomiphene regulated ovulation offers a better chance of conception in these patients.

Clomiphene citrate was selected for regulated ovulation in this group of patients because (1) it was believed to be a safe and reliable means of inducing ovulation; (2) ovulation could be predicted well in advance of the planned inseminations; (3) the beginning of the course of treatment could be modified; and (4) with an accurate determination of ovulation, pregnancy rate could be maximised, allowing a decrease in the total number of treatment cycles required. Two or three inseminations, 48 hours apart, were used as Torrano and Murphy (1962) reported that conception was most likely to occur 2 days before the rise in basal body temperature. The temperature rise, following clomiphene citrate administration, usually occurs 6 to 9 days after completion of a 5-day course; therefore days 5 and 7 seemed optimal for insemination.

Behrman and Sawada (1966) reported a successful pregnancy following gonadotrophin therapy in a patient undergoing AID. Kohane *et al.* (1967) and Fuchs *et al.* (1966) reported successful pregnancies following human chorionic gonadotrophin administration. Most recently, synthetic luteinizing hormone has been used to induce ovulation in patients undergoing AID (Nakano *et al.*, 1973; Taymor, 1974).

SUMMARY

It is observed that AID with fresh semen ensures a pregnancy rate of 51.60 per cent in an average treatment cycles of 5.27, with 31.30 per cent conception occurring in 3 cycles. When the female fertility status was evaluated and ovulation was timed with basal body temperature chart, the success rate was more (68.50 per cent) and treatment cycles required were less (mean 3.27), 76.92 per cent of the conceptions were within the first 3 months. Women with normal fertility status, but failed to conceive by 3 attempts, were benefited by clomiphene citrate regulated ovulation in 42.80 per cent of cases.

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Fertyl (Ar-Ex Laboratories) brand of clomiphene citrate was used in this study.

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CASE NOTES

1

Inflammatory Fibroid Polyp of Ileum

G. K. SONI*

Inflammatory fibroid polyp is a localised lesion of gastrointestinal tract. Vanek (1949) and Helwig and Ranier (1953) were the authors who described these lesions clearly. A variety of names like granuloblastoma, granuloma, eosinophilic granuloma, fibroma, neurofibroma, have been used in the literature for this type of lesion. However, it is felt that the term inflammatory fibroid polyp is more specific. It clearly denotes the feature of the lesion and avoids confusion. Stomach is the organ most frequently involved. Only about a dozen of cases involving the ileum have been reported in the literature. One such case treated by the author is reported here.

CASE REPORT

R. K., a female, aged 42 years, was admitted in the hospital on 12-8-1975 with history of colicky pain in the abdomen, and nausea and vomiting for one day. She had normal bowel action that morning. There was no urinary complaint. There was no previous history of pain abdomen or any other serious illness. She underwent tubectomy 6 years previously.

Examination—At the time of admission, she was not looking ill. Temperature, pulse, respiration and BP were within normal limits. Heart and lungs were unremarkable. Abdominal examination revealed no abnormality except a well healed subumbilical midline operation scar 7.5 cm. in length.

Investigations and course of illness—Examination of urine and stool, blood for haemoglobin, total and differential count and plain x-ray of abdomen were unremarkable.

The patient became asymptomatic within 3 hours of admission and remained so on the next 2 days. On 15-8-1975 she again had colicky pain and vomiting lasting for 5-6 hours.

Command Military Hospital, Chandigarh
*M.B.B.S. (Pb.), M.S. (Pune), Lt. Col., V.S.M., Junior Surgeon

Clinical examination again revealed no abnormality. She remained symptom-free for the next 3 days but again had pain lasting for 2-3 hours on 19-8-1975. A repetition of investigations carried out was non-contributory. Barium meal study of stomach and intestines showed no abnormality. On 23-8-1975 she developed pain and vomiting again. Examination of abdomen on this occasion revealed slight distension of abdomen, and a plain x-ray of abdomen showed a distended loop of small intestine lying horizontally. It was thought that probably there was an adhesion between a loop of small intestine and the old operation scar and the loop got twisted and detwisted around the adhesion giving rise to recurrent pain and vomiting.

Operation—Laparotomy revealed a 10 cm. segment of ileum about 45 cm from the ileocaecal junction, invaginated into adjacent ileum distoproximally (retrograde). There was a firm swelling at the apex of the invaginated bowel. Intussusception was easily reduced, the tumour and a portion of bowel were resected and an end-to-end anestomosis was performed.

Pathology—Macroscopically a pinkish grey, firm tumour, [illegible] cm.×2.5 cm. in size was seen. Cut surface showed pale and haemorrhagic areas and glistening surface. Microscopically the section (Fig. 1, H.&E., ×110) showed fibrous tissue element mixed with angiomatous tissue. There was marked degree of infiltration by eosinophils and some plasma cells and lymphocytes. Histopathological diagnosis --inflammatory fibroid polyp.

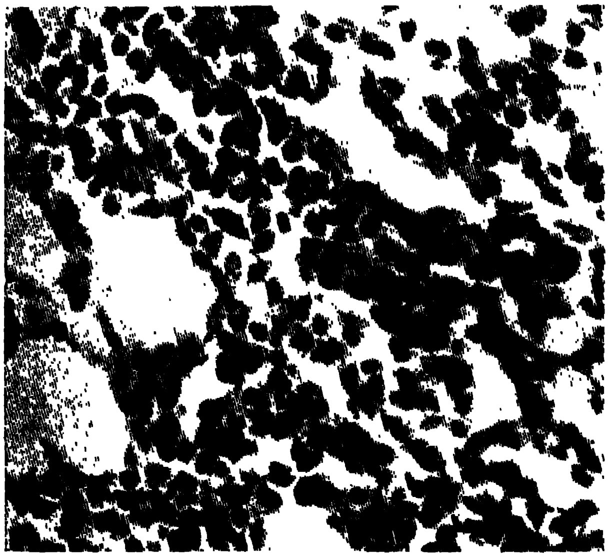

FIG. 1—SHOWING FIBROUS AND ANGIOMATOUS TISSUE WITH EOSINOPHIL AND INFLAMMATORY CELLS IN PHOTOMICROGRAPH

Follow-up—The patient had an uneventful postoperative period. She has been followed for more than 1½ years now and is enjoying good health.

DISCUSSION

Inflammatory fibroid polyp of the ileum is rather a rare lesion. Females are predominantly affected and the maximum incidence is in the age group 40-60 years (Ramirez *et al.*, 1973). The patient usually presents with attacks of abdominal pain which may be associated with nausea and vomiting as in the present case. Bowel irregularity is infrequent and gastrointestinal bleeding is not a feature of ileal lesions though it has been reported with gastric (Vanek, *loc. cit.*; Goldman and Friedman, 1967) and colonic (McGee, 1960) lesions. Intussusception is the most frequent complication and usually brings the patient to hospital as in the present case. Laboratory investigations are usually non-contributory. However, severe anaemia has been reported (Cox, 1960). Though there is marked eosinophilic infiltration in the lesion, blood eosinophilia is not a feature (Ureles *et al.*, 1961)

Terminal ileum is more frequently involved than proximal ileum and the tumour usually measures 1-4 cm. with a mean diameter of 2.7 cm. (Ramirez *et al.*, *loc. cit.*). The tumour arises in the submucosa and projects into the lumen. It has a smooth pinkish grey surface which may ulcerate. Microscopically there is vascular granulation tissue with variable eosinophilic infiltration and a few plasma cells and lymphocytes. There is a zone of fibrous tissue in which cells show palisading arrangement (Morson and Dawson, 1972).

Treatment is resection of the tumour bearing segment of bowel and an end-to-end anastomosis. Recurrence has not been reported so far and the lesion is considered essentially benign (Ureles *et al.*, *loc. cit.*).

The aetiopathogenesis of the lesion is unknown and it has been classified as pseudotumour. Allergy has been considered as the cause in view of marked eosinophilic tissue infiltration. However, no history of food or drug allergy could be elicited in the patients reported. Toole and Moschopoulos (1959) and Ureles *et al.* (*loc. cit.*) consider this lesion to be a circumscribed variety of idiopathic eosinophilic gastro-enteritis. However, Helwig and Ranier (*loc. cit.*) believe that diffuse and localised forms of eosinophilic gastro-enteritis are 2 different lesions. Klepinger and Pontius (1964) have suggested that surgical or stercoral trauma and infection followed by reactive persistent fibrovascular hyperplasia could be the basis of these lesions.

SUMMARY

A case of inflammatory fibroid polyp of ileum presenting as intussusception has been described. Pathology, clinical presentation, treatment and aetiopathogenesis of the lesion have been briefly discussed.

ACKNOWLEDGMENT

The author is grateful to Col. (now Brig.) H. S. Bains, the then Officer Commanding, Command Military Hospital, Chandigarh for his encouragement and permission to use the hospital records. Thanks are due to Lt. Col. M. P. Misra, Pathologist, for carrying out histopathological studies with great interest and for providing the photomicrograph.

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2

Ileosigmoid Knotting

(MRS.) I. SAHA*, R. B. CHATTERJEE**
SUKUMAR SAHA***

The term ileosigmoid knotting means twisting of a loop of terminal ileum around the sigmoid colon. The length, mobility and configuration of intestinal mesenteries play an important part in producing this intestinal knot syndrome (Som, 1974). Though the condition is rare, cases have been reported from our country by Dunkerley (1953), Sankaran (1962), Chandra *et al.* (1970), Ghosh (1972) and Roy and Roy (1973). Four similar cases are presented here.

Case Reports

Case 1 :

C, a Hindu male, aged 67 years, came from a village of 24-Parganas, West Bengal. He was admitted in the Medical College and Hospitals, Calcutta, on 28-4-1976 at 1.30 PM with complaints of central abdominal pain for 12 hours, increasing distension of abdomen with frequent bilious vomiting of same duration and constipation for 2 days.

Examination—The patient was of average build and nutrition. He was sweating and had cold clammy skin. He was pale, anxious and distressed with pulse rate 140/minute and BP 115/60 mm. Hg. The abdomen was distended moderately and was tender particularly over the central part. It was rigid and silent. Rectal examination showed empty rectum with ballooning; finger stall did not show any blood.

Straight x-ray of abdomen revealed features of intestinal obstruction. A provisional diagnosis of volvulus of sigmoid colon with strangulation was made. Resuscitation of the patient by intravenous fluid, nasogastric suction and sedation was done and the case was prepared for surgery.

Operation—The abdomen was explored through right mid-paramedian incision. As soon as peritoneum was opened, distended loops of gangrenous small bowel was visualised; peritoneal cavity was full of blood-stained fluid. After proper exploration, an intestinal knot consisting of ileum and sigmoid colon was detected. The knot was so tight and distension of the knotted loops of intestine was so marked that it was difficult to tackle the situation. So deflation of knotted loops of both small and large intestines was done. After deflation the knot was visualised properly. It consisted of 2 limbs of small intestine (afferent and efferent) around the redundant loop of sigmoid colon. Though the colour of the sigmoid colon was dark, there was pulsation of vessels supplying the sigmoid colon but it was absent in the gangrenous small intestine. The gangrenous small intestine was divided in between 2 clamps. As the knot was released sigmoid colon became free from entrapment. The divided distal end of ileum was very close to the caecum, so it was closed down and the proximal end was anastomosed with transverse colon, i.e., ileotransverse anastomosis was established. As the condition of the patient was unsatisfactory, the entrapped sigmoid colon was exteriorised through a separate stab incision in the left iliac fossa. The abdomen was closed in layers after putting an intraperitoneal drain.

The postoperative period was stormy. On the 3rd postoperative day he developed wound infection and parotid abscess on the right side. Bowel sounds did not return and on the 6th day the colour of the exteriorised sigmoid colon returned to normal. Gradually the wound infection went on increasing and the surface of exteriorised colon became covered with flakes of white pus. There was profuse fluid loss from the surface of the gut. On the 8th day the exteriorised sigmoid colon was excised to prevent fluid loss from the gut and to control infection. On the 10th day the condition of the patient deteriorated further, he developed high fever and died of endotoxic shock.

Case 2 :

G.M.M., 40 years, male, farmer, was admitted on 27-9-1976 at 8 PM in R. G. Kar Medical College and Hospital with history of pain in abdomen, vomiting and constipation for 36 hours. The pain started suddenly round about the umbilicus and gradually spread all over the abdomen and was associated with profuse vomiting.

Examination—The patient was toxic; pulse—120/minute, volume and tension low; BP—90/64 mm. Hg; tongue—dry and coated. The abdomen was distended, rigid and tender without any peristaltic sound.

Straight x-ray of abdomen revealed multiple fluid levels with gas shadows. Rectal examination did not reveal any abnormality. A provisional diagnosis of intestinal obstruction was made and the case was prepared for surgery after resuscitation.

Operation—The abdomen was opened through right mid-paramedian incision; plenty of dark haemorrhagic fluid was sucked out and coils of gangrenous small intestine became visible. As the gangrenous small intestine was pulled out, hugely distended sigmoid colon knotted within loops of small intestine became visible. The colour of the sigmoid colon was normal though it was entrapped within loops of small intestine. Deflation of sigmoid colon was done and the knot untwisted. The condition of the pateint did not permit right hemicolectomy, so resection of gangrenous terminal ileum with closure of distal stump was done. Ileotransverse anastomosis with the proximal stump was established. The abdomen was closed in layers after putting an intraperitoneal drain.

The postoperative period was unsatisfactory. He developed burst abdomen and shock on the 9th postoperative day. The burst abdomen was repaired under local anaesthesia but he did not recover from shock and died on the same day.

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*M.B.B.S., M.S., Registrar, Department of Surgery, R. G. Kar Medical College and Hospital, Calcutta

**M.S., F.R.C.S., Professor-Director of Surgery, Medical College and Hospitals, Calcutta

***M.B.B.S., Medical Officer, Department of Surgery, R.G. Kar Medical College and Hospital, Calcutta.

CASE 3 :

M.N.B., 65 years, Hindu male, farmer, was referred from Barasat Sub-divisional Hospital and was admitted in the Medical College and Hospitals, Calcutta, on 20-10-1976 with history of constipation for 2 days, pain in abdomen and vomiting for the same duration.

Examination—The patient was looking anxious. Pulse—115/minute; BP—105/70 mm. Hg. The whole abdomen was moderately distended, tense and tender; no visible peristalsis was seen. Bowel sounds were absent.

Straight x-ray of abdomen showed features of intestinal obstruction. The condition of the patient deteriorated very soon; pulse rate was 140/minute and BP came down to 60 mm. Hg. (systolic). Steroid was started with rapid IV drip. The patient gradually recovered from shock and was prepared for surgery.

Operation—The abdomen was explored through right paramedian incision. Peritoneum was opened and plenty of blood-stained fluid aspirated out. Large portions of gut, both small and large, were found gangrenous within a knot formed by terminal ileum and sigmoid colon. The entire knot consisting of 3 feet of terminal ileum and a long pelvic colon which was gangrenous was resected *en masse* and ileotransverse anastomosis and colocolic anastomosis of pelvic colon were established. The abdomen was closed in layers after putting an intraperitoneal drain.

In the postoperative period the patient did not recover from shock; his BP was always below 90 mm. Hg. (systolic). Blood transfusion could not be given as blood of the same group was not available. Gradually the patient went into oliguiric phase and expired on 22-10-1976.

CASE 4 :

B.C.M., a 40-year-old Hindu male, was admitted in the Medical College and Hospitals, Calcutta, on 20-10-1976, with the complaints of pain in abdomen, vomiting and constipation for the last 24 hours. He was passing scanty urine for the same duration.

Examination—The patient was of moderate build and nutrition. His pulse was 110/minute, BP—100/60 mm. Hg. The abdomen was moderately distended; tenderness was present throughout the abdomen and bowel sounds were absent.

Straight x-ray of the abdomen revealed distended loops of intestine with multiple fluid levels. Laparotomy was done.

Operation—The abdomen was explored through right paramedian incision. As peritoneum was opened plenty of blood-stained fluid was seen in the abdomen which was sucked out. Loops of gangrenous small and large intestines were seen entrapped in ileosigmoid knotting. The knot was released after deflating pelvic colon and untwisting small intestine by manipulation. After releasing the obstruction, although viability of small intestine was doubtful, resection was not done. The gangrenous pelvic colon was only resected and an end-to-end anastomosis was done. The abdomen was closed in layers after putting an intraperitoneal drain.

Postoperative period of the patient was unsatisfactory, his condition did not improve. Bowel sounds did not return even on the 6th postoperative day. So re-exploration of the abdomen was done on 25-10-1976. After exploration about $1\frac{1}{2}$ feet of terminal ileum was found to be gangrenous. Right sided hemicolectomy with ileotransverse anastomosis was done, and the abdomen was closed in layers. Two bottles of blood transfusion were given. The condition of the patient deteriorated further after the 2nd exploration and he died on 28-10-1976.

DISCUSSION

Cases of ileosigmoid knotting have been reported from different countries of the world. The cause of formation of this type of volvulus is still obscure. People on bulky vegetarian diet and on starchy food are more susceptible (Pool and Dunavant, 1951) to volvulus as it was observed in some countries like Russia and Finland, and in Africa (Aird, 1957). Paul (1940) has described a single case from Ceylon and Dunkerley (*loc. cit.*) from India. Besides these dietary factors there are some mechanical causes, such as a long pelvic colon with associated long mobile small bowel with a narrow pedicle are more prone to undergo ileosigmoid knotting.

The mechanism of formation of this type of volvulus is probably due to falling of a loop of small bowel in front of pelvic colon (Fig. 1). The loop of small bowel moves backwards and downwards behind the ascending and descending limbs of pelvic colon and thus forms a complete ring (Fig. 2) and due to this knotting the vascularity of the loop of small bowel is jeopardised giving rise to gangrenous change. This gangrenous change can also be seen in pelvic colon if the obstruction persists for a prolonged period. Regarding the mechanism of production of this condition different authors have different views. The term 'double volvulus' have been used by most of the authors (Kallio, 1932; Burkitt, 1952; Weinberg, 1958; Hall-Craggs, 1960; White, 1962; Easmor and Lahiri, 1963). Shepherd (1967) reported a series of 9 cases and termed it more accurately as 'ileosigmoid knotting' pelvic colon playing a passive part in rotational movement; i is the terminal ileum which rotates round the sigmoid colon Ghosh (*loc. cit.*), Roy and Roy (*loc. cit.*) and Chatterjee (1973 have also termed it as 'ileosigmoid knotting'. The term seem to be more correctly applicable in the 4 cases reported in th present paper.

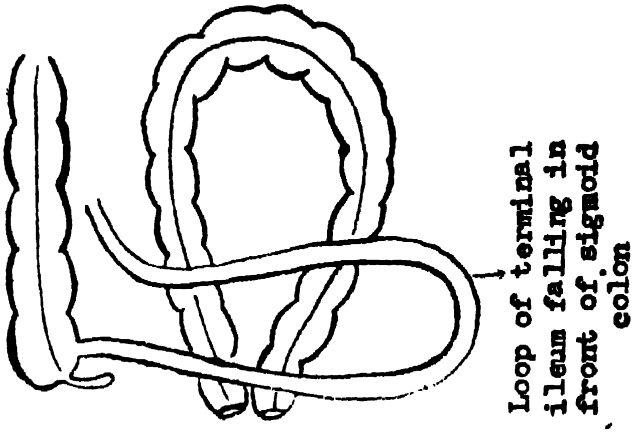

FIG. 1—SHOWING THE LOOP OF TERMINAL ILEUM FALLING IN FRONT OF SIGMOID COLON BEFORE FORMATION OF ILEOSIGMOID KNOTTING (SCHEMATIC DIAGRAM)

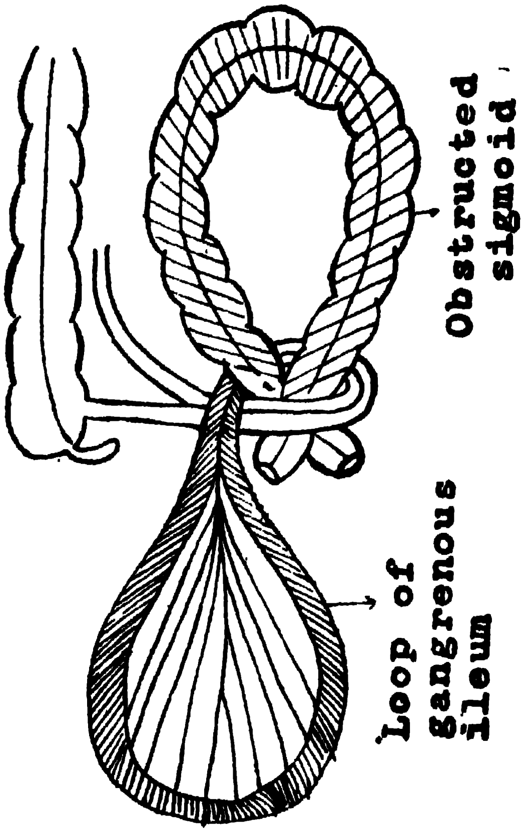

FIG. 2—SHOWING FORMATION OF COMPLETE KNOT (ILEO-SIGMOID) WITH TERMINAL ILEUM AND SIGMOID COLON (SCHEMATIC DIAGRAM)

Bailey (1972) has mentioned this condition as 'compound volvulus' (ileosigmoid knotting). Som (*loc. cit.*) described it as 'intestinal knot syndrome'. If an early diagnosis is not made 80 per cent of cases develop gangrene and the mortality rate becomes very high. But the mortality rate can be reduced to 25 per cent by making an early diagnosis, resuscitation and resection anastomosis (Bailey, *loc. cit.*).

SUMMARY

Four cases of ileosigmoid knotting have been presented and the literature reviewed.

ACKNOWLEDGMENT

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3

Acute Puerperal Inversion of Uterus in Primipara

SUBRATA K. CHATTERJEE*, R. N. NAG**

Acute puerperal inversion of the uterus is an extremely rare and dangerous complication of labour. The associated high maternal mortality and morbidity have not been reduced by the increased availability of antibiotics and blood transfusion. Early diagnosis, prompt supportive measures, and prompt replacement of the uterus are essential to avert catastrophe. More important than treatment, however, is prevention; the hazards of over-vigorous cord traction and fundal pressure cannot be overemphasised The present paper reports three consecutive recent cases encountered at the obstetric unit of Ramakrishna Mission Seva Pratisthan, Calcutta.

CASE REPORTS

CASE 1:

Mrs. S D , primigravida, aged 24 years, was admitted on 22-8-1976 in active labour She was at term and her prenatal period was uncomplicated excepting a moderate degree of anaemia. Progress of labour was desultory with weak, irregular contractions throughout. Spontaneous delivery of a living male baby that weighed 2.5 kg., occurred approximately 22 hours after the onset of labour Twelve minutes after delivery, as the attending house surgeon was attempting to remove the placenta by cord traction, the uterus became inverted completely and appeared outside of the introitus with the placenta still attached to it There was a fair amount of free oozing from the inverted uterus

Management—The patient was given morphine hydro-

Department of Obstetrics and Gynaecology, Ramakrishna Mission Seva Pratisthan, Calcutta
*M.B.B.S. (Cal.), Registrar
**M.B.B.S., Ph.D. (Cal.), F.R.C.O.G. (Lond.), F.A.C.S., Visiting Obstetrician and Gynaecologist

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chloride 15 mg. IM and an intravenous infusion of 5 per cent dextrose was started quickly. By the time a senior resident arrived, 15 minutes had elapsed and the patient was in shock with a systolic blood pressure of 80 mm. of Hg and pulse rate 144/minute. Blood transfusion had to be started at this time and the patient was anaesthetised shortly. The placetna was peeled off from the fundus and the inversion corrected by gentle pressure on the fundus while the fingers retracted the cervical ring. The procedure took only a few minutes and was accomplished without difficulty. Methylergometrine maleate—0.2 mg. was given both IM and IV and oxytocin—10 units in infusion drip of 5 per cent dextrose solution was started to keep the uterus contracted. The patient's condition improved gradually after reposition of the uterus and blood transfusion. She received a total of 1200 ml. of whole blood Her puerperium remained uncomplicated and the uterus was well involuted during postnatal check-up.

CASE 2:

Mrs. K G, primigravida, aged 22 years, was admitted on 23-8-1976 with mild pre-eclampsia for induction of labour. She was at term and her prenatal period was uncomplicated. Labour was induced on 24-8-1976 by stripping the membranes and by castor oil 1½ oz. enema. After an uneventful 14 hours of labour, she delivered spontaneously a healthy male baby weighing 2.6 kg. The placenta was delivered 16 minutes later with cord traction and gentle fundal pressure. Following placental delivery, vaginal bleeding became brisk.

Examination—The uterine fundus was indistinctly palpable above the symphysis pubis and an immediate vaginal examination revealed the mass of inverted fundus lying in the vagina

Management—Morphine hydrochloride—15 mg. was given IM and 5 per cent dextrose solution infusion was started quickly. The attending house surgeon attempted in vain to replace the fundus with gentle manual pressure and called in a senior resident. By this time vaginal bleeding had stopped but the patient was in deep shock. Her blood pressure could not be obtained and pulse was thready, 168/minute. General supportive treatment for shock with ample blood transfusion through multiple sites was instituted. Forty minutes after placental expulsion, her blood pressure was 90 mm. of Hg systolic with a pulse rate of 146/minute

She was anaesthetised and manual reposition of the inverted fundus protruding through a constricting cervical ring was attempted with difficulty. Firm pressure was applied to the uterus next to the uterocervical ring and the fundus was slowly pushed through. Methylergometrine maleate—0.2 mg. was given IV and oxytocin—10 units in 5 per cent dextrose solution infusion was started The uterus was massaged bimanually and the fundus contracted firmly after about 10-12 minutes of reposition. She received a total of 1500 ml. of whole blood. Her blood pressure and pulse rate improved slowly during the postoperative period. Eight hours after the operation, she was alert and rational with a steady blood pressure and pulse rate. There was slight elevation of temperature in the afternoon for 3 days, but her convalescense was otherwise normal. Her pelvic structure were normal when she was last seen 8 weeks after delivery

CASE 3:

Mrs. S R, primigravida, aged 30 years was admitted on 2-9-1976 morning with false labour pain. She was at term and her prenatal care was normal. On admission, she was given a low enema. At 6 PM on 3-9-1976, oxytocin—10 units in 5 per cent dextrose solution drip was started for acceleration of labour. At 3.30 AM next day, the cervix was completely dialated and she delivered spontaneously at 4.49 AM. A male infant weighing 2.2 kg. with good birth vigour was born. After 10 minutes of delivery, as the attending staff nurse was waiting for placental separation, a red, congested mass came outside the vulva with a sudden bearing down effort by the patient.

Examination—The house surgeon on duty did an immediate pelvic examination. The uterus was found to be completely inverted and outside the introitus and could not be felt per abdomen The placenta was attached firmly to the uterine fundus. There was no free vaginal bleeding or any features of shock.

Management—Morphine hydrochloride--15 mg. was given IM and within a few minutes the placenta was peeled off from the uterus easily and the fundus was replaced manually by gentle pressure with the palm. Methylergometrine maleate was given IV and the fundus contracted well. Oxytocin—10 units in infusion drip of 5 per cent dextrose solution was given to keep the uterus contracted. Her vital signs were normal half an hour after the procedure and the postoperative course was uneventful. The uterus was well involuted at the time of postnatal check-up.

DISCUSSION

It is very difficult to determine with accuracy the actual incidence of inversion as a complication of childbirth because hospital figures give a very imperfect picture of this complication which reportedly varies widely, from 1 in 2,000 (Kehreg, 1898 cited by Das 1940) to 1 in 400,000 (Zangemeister, 1934 cited by Moir and Myerscough, 1971) deliveries. However, Das (*loc. cit.*) reviewed various hospital statistics and found that inversion was more common in Indian hospitals compared to that in American or British hospitals. Twenty cases of acute puerperal inversion have been reported in the recent Indian literature during the last 10 years, from 1967-1976, of which 12 have been reviewed by Banait and Banait (1975), 5 by Palanichamy (1976) and 3 by Das *et at* (1976). The incidence in Indian hospitals shows, recently from Tamil Nadu, no cases among 12,302 deliveries (Palanichamy, *loc. cit.*) while Chowdhury (1964) and Ghosh and Das (1972) from Bengal reported 1 in 4,400 and 1 in 40,000 deliveries respectively. There were 4 cases of acute inversion of uterus (one in 1972 and the 3 cases presented here) among 34,312 deliveries occurring during the last 6 years (from 1971-1976), in this hospital showing an incidence of 1 in 8,578 deliveries.

In a high percentage of cases, puerperal inversion is found to be spontaneous in orgin. In the remaining cases, predisposing factors, such as, sudden emptying of the uterus, thinning of the uterine wall, a patulous dilated cervix, fundal attachment of placenta or increased abdominal pressure due to coughing, sneezing or bearing down are present along with excessive traction on the cord or improperly applied Crede's method of expression of placenta. In Das's series (*loc. cit.*) inversion was spontaneous in 40 per cent of cases and the placenta was located over the region of the fundus in 75 per cent of cases. Amongst the 3 cases reported here, the 1st 2 were associated with manipulations during conduction of the 3rd stage of labour and the 3rd one appeared to be spontaneous in orgin with a bearing down effort by the patient. In 2 of these cases, the placenta was attached to the fundus of the uterus and in the remaining one the location of the placenta was not made out.

In the series reported by Das (*loc. cit.*) and McCullagh (1925), 52 per cent of the patients were primiparae and according to Das (*loc. cit.*), 73 per cent of the patients were between 20-30 years of age. All the 3 cases reported here were primparae and between 22-30 years of age. This is also quite in agreement with Banait and Banait (*loc. cit.*) who found 35.2 per cent of the patients to be primiparae and 64.7 per cent between 21-30 years of age. According to Das (*loc. cit.*), the type of labour and delivery have no bearing on uterine inversion and here in 2 cases of the present series, labour and delivery were uncomplicated whereas in the 1st case labour was desultory and prolonged.

Haemorrhage and shock are the two most common findings in acute cases of puerperal inversion. Shock is often out of proportion to the amount of blood loss and can be attributed to neurogenic components. Diagnosis is usually made easily. There is absence of the uterine fundus abdominally and a soft, congested, pear-shaped, bleeding mass appears per vagina. In each of the 3 cases reported here, the diagnosis was made immediately and easily by the house surgeons on labour room duty.

Prognosis depends on how soon the condition is treated and the maternal mortality reportedly varies from 14.8 per cent (Das, *loc. cit.*) to 70 per cent (Saxena, 1964). Bell *et al.* (1953) reviewed 76 cases where they found that in patients, treated within 30 minutes, there was a maternal mortality rate of only 5 per cent; for those in whom treatment was delayed, the rate was 30 per cent. In the present series, shock was not evident in the 3rd case where the attending house surgeon replaced the inverted uterus immediately, whereas in the 1st and 2nd cases, profound shock was encountered due to delay in replacing the uterus. However, it should be remembered that attempts at immediate replacement in presence of shock, haemorrhage and contracted cervix may result in nearly 100 per cent mortality (Harer, 1940). Hence, reposition should be done either before the shock has come or after it has been treated (Donald, 1969). In the 1st and 2nd cases in this series, replacement was undertaken after the patients had recovered from shock and none of 3 cases, reported here, was lost. The reported maternal mortality in acute cases in the recent Indian series by Banait and Banait (*loc. cit.*) and Palanichamy (*loc. cit.*) was 25 per cent and 33.3 per cent respectively.

However, one should not fail to appreciate the importance of time factor and according to O'Sullivan (1959), the difficulty in replacement is in direct proportion to the time elapsing since the occurrence of inversion. As time passes on, the cervix gets constricted and the inverted uterus becomes congested and oedematous, and one may have to resort to surgical methods. Mehra and Ostapowicz (1976), reported a combined abdominovaginal approach in an acute case of puerperal uterine inversion where the cervical ring became constricted and the fundus of the uterus, after laparotomy, was pulled in position by catgut sutures with simultaneous pressure per vagina. Here, in the 1st and 3rd cases, the uterus was easily replaced manually but in the 2nd case, manual replacement was difficult because the cervical ring got constricted due to delay in replacement of the uterus. Baird (1950) advised not to remove placenta if it is still attached before reposition of the inverted uterus for fear of severe haemorrhage whereas Greenhill and DeLee (1951) advocated prior placental removal for convenience of reposition. However, in 2 cases reported here, prior removal of the placenta made manual replacement convenient without any hazard.

The most important part of management is the time which elapses before the uterus is replaced. The longer the interval between inversion and replacement, worse is the progress. Therefore, some senior person should always be on duty in the labour room so that these catastrophes could easily be prevented by better obstetric management.

SUMMARY

Three cases of uterine inversion in primiparae, immediately following delivery, are reported. All the cases were successfully managed by immediate implementation of supportive measures and reposition of the uterus by manual taxis. The incidence, possible aetiological factors, prognosis and management of the condition is discussed.

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Methergin (Sandoz) brand of methylergometrine maleate injection and syntocinon (Sandoz) brand of oxytocin injection were used.

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Pulmonary Tuberculosis and Cor Pulmonale

Cor pulmonale is a group of cardiovascular disorders developing secondary to parenchymal diseases of the lung or primarily in its vascular bed or due to abnormality in the thoracic cage. Although, mostly it is a chronic disorder but subacute or acute cases are sometimes seen. Most of cor pulmonale cases, reporting for treatment in hospitals, had their disease due to bronchitis-emphysema syndrome[1]. Reports about post-tuberculous cor pulmonale were very rarely found in literature. Kapoor[2] in 1959 reported that he had not seen in the early '50s more than 1 or 2 cases in a year dying of right heart failure with pulmonary tuberculosis. Viswanathan[1] could not recollect having come across any case of chronic cor pulmonale among tuberculosis cases before antibiotic era. But today, with change of time, by introduction of specific treatment for tuberculosis, reports of cor pulmonale following chronic pulmonary tuberculosis are published more frequently. Kapoor[2],[3] reported about 66 cor pulmonale cases in 1959 and in 1962 reported about 200 cases including the previous cases[3]. Padmavati and Pathak[4] reported 7 cases of post-tuberculous cases of cor pulmonale out of 127 cases (5.5 per cent) during a study period from 1953-1957. Later in 1969, Padmavati and Mishra[5] published another report of 9½ years' observation (1958-1967) about 454 cor pulmonale cases of which 32 (7 per cent) followed pulmonary tuberculosis. But Chatterjee *et al.*[6] in 1971 studied 61 extensive pulmonary tuberculosis cases and they found 29 cases with features of chronic cor pulmonale (47.5 per cent). Wide variation in the incidence of the disease appears to be confusing. Kapoor[3] made a random examination of 100 cases in two wards and could detect 5 new cases apart from 12 old cases. Agrawal *et al.*[7] reported 19 cases of cor pulmonale out of 125 cases of pulmonay tuberculosis in a recent issue of this Journal.

Cor pulmonale mostly appears in middle aged subjects with extensive fibrocaseous tuberculosis. It may develop even when treatment is continuing or after treatment has been completed. The pathological changes, occurring in the process, is usually irreversible in chronic cases. Cor pulmonale, developing in acute tuberculous diseases, may be reversible by intensive treatment[8]. Previously, due to want of specific drugs, many tuberculosis cases used to die of progressive disease. But now, because of availability of potent drugs, even in advanced cases, death is delayed or prevented, resulting in granulomatous and fibrotic changes in many of them. Bronchiectasis is another common undersirable sequel in some of the advanced cases. Bronchiectasis, again, was reported to be a commoner cause than tuberculosis for development of cor pulmonale[1].

Bromberg and Robin[9] stated that treatment of tuberculosis may produce complex disorders of lung function in which focal, parenchymal and pleural disease, presence or absence of diffuse obstructive or restrictive defects and the state of pulmonary circulation were major factors in understanding pathophysiology of the case. The popular theory of hypoxia, causing constriction of pulmonary arterioles, stands as one of the most accepted views. But full saturation of the pulmonary blood by oxygen administration does not always reduce the pulmonary arterial pressure[10]. Extensive areas of lung parenchyma may be damaged by inadequately and improperly treated tuberculosis cases causing serious circulatory problems[11]. But lung has a great amount of ventilatory reserve. An individual has been known to live without noticeable ill effects even after sacrificing both lower lobes, right middle lobe and lingular segment of the left lung[12]. Persons, after pneumonectomy, are seen to continue normal activities if the other lung is not already damaged. Pneumonectomy does not increase pulmonary arterial pressure[13]. To produce pulmonary hypertension, its vascular network must be grossly reduced[14]. Pulmonary vasconstriction can also occur if the bronchial passages are blocked causing alveolar hypoventilation[15]. If the bronchial passage is restored, ventilation improves and pulmonary vascular pressure is restored to normal.

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Symptoms are insidious at onset and the disease takes a long protracted course. Initial manifestations are often overlooked and are considered to be due to pulmonary tuberculosis itself. So, an early diagnosis of tuberculosis and institution of proper, regular and adequate treatment help to stave off the development of cor pulmonale. In many cases, development of cor pulmonale is noticed when features of congestive heart failure become apparent. Patients, observed in hospitals, represent only a preselected group and many of them are from lower economic level of the society. Those who can afford prefer treatment at home or in nursing homes. Thus, quite a number of cor pulmonale cases today go unnoticed and so tuberculosis remains as a relatively uncommon cause of chronic cor pulmonale. We have reasons to believe that cor pulmonale, following tuberculosis, is not uncommon. Moreover, due to potent chemotherapeutic drugs, a significant portion of residual deaths after tuberculosis are due to cor pulmonale, even when tuberculosis itself has been arrested[8].

As tuberculosis is still the most prevalent chronic respiratory malady in India, the incidence of chronic cor pulmonale as an after effect of tuberculosis is not likely to be so low. With high prevalence of lung tuberculosis among poverty striken people, with inadequate medical facilities and incomplete treatment, number of cor pulmonale cases are likely to be more. Hence, a long term study, using a standard parameter of serial lung function test, at least in hospitalised pulmonary tuberculosis cases, may reveal more probable cases of cor pulmonale in future[5]. Further, investigation by clinical examination, x-ray, ECG, blood gas studies and follow-up of these cases may provide us with a more accurate answer of incidence of the disease.

MANISH CH. PRADHAN

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CURRENT TOPIC

Tuberculosis in India—A Perspective

D. R. NAGPAUL*

Although tuberculosis is known to have existed in India from time immemorial, not much is known about how it was distributed, its spread, and the disease trend till lately. Much of the information in the Vedas and Ayurvedic Samhitas deals with the prominent clinical features of the disease and the kind of patients who might respond to certain treatment. Neither notification nor health statistics existed then, that could have thrown light on the rise and fall of the disease in the country. The information that has become available over the last few decades, excepting properly conducted epidemiological surveys, also is not very reliable. Therefore, conflicting claims are often made about the disease being on the increase, endemic or declining in the country with no means available to confirm the claim.

TUBERCULOSIS EPIDEMICS :

Like acute infectious diseases, the chronic infectious diseases also spread in communities as epidemics. But, the characteristic secular curve of these epidemics is not easily discernible. Complete information about a tuberculosis epidemic is not available in any country of the world. In some European countries notifications of tuberculosis deaths became a regular practice from late 18th century and the mortality curves drawn on this basis suggest that a tuberculosis epidemic may last from 200 to 400 years (Grigg, 1958). If so, the doubt arises whether ancient countries with thousands years of tuberculosis experience have had one or several tuberculosis epidemics. In view of paucity of information, some degree of conjecturing may be permissible on the basis of the known facts.

For projecting a proper conjecture one must also draw upon the accepted typical features of the disease during the ascending and descending phases of the epidemic. During spread of the disease in "virgn soil", the infection, disease and death rates are all high and there is little difference between them; the dsease is acute, rapidly progressive and often fatal, and is concentrated among the young as well as the city dwellers who live under conditions favouring dissemination. Spread to rural areas occurs much later, but in a very similar manner. During the descending or waning phases, however, the above mentioned rates are not only comparatively low but very different from each other. The disease now is chronic, slow or indolent, fibrotic, not so fatal and concentrated among the elderly. During the endemic phase, all the features of the waning phase prevail but, barring the temporary fluctuations, there is little or no change in the various rates over long periods.

Grigg (*loc. cit.*) also made several other significant observations about tuberculosis epidemics, based on theoretically drawn epidemic curves supported by many a piecemeal observation from several different countries. Thus, the tuberculosis epidemic curves of different countries or the different regions

National Tuberculosis Institute, Bangalore
*B.Sc., M.B.B.S., T.D.D., Director

of the same country may appear to be different (but are not really different) due to varying socio-economic environment and resultant host-parasite relationship. Similarly, the peaks of tuberculosis infection, morbidity and mortality may occur at different times and to different extents in a country for different age, sex and ethnic groups. In other words, to gauge a tuberculosis epidemic in its true perspective, a broad review spread over as long a period as possible is necessary, because the statistics of a decade or two, collected from different regions and selected consciously or unconsciously for diffrent reasons, may more often mislead than tell the true position.

TUBERCULOSIS IN INDIA :

With regard to India, no direct evidence is available as to the number of epidemics that the country has had so far, nor is the true position on the current tuberculosis epidemic curve known.

The most prominent findings of the National Tuberculosis Survey (ICMR, 1959), Tuberculosis Prevalence Survey in Tumkur (Raj Narain *et al.*, 1963) and Tuberculosis in a Rural Population of South India, a five-year Epidemiological Study (National Tuberculosis Institute, 1974) are that (i) the tuberculosis morbidity in India is largely confined to older age groups, (ii) prevalence in the rural areas is similar to that in cities and (iii) the gap between infection and disease rates (38 per cent and 0.4 per cent respectively) is very larger indeed. All the 3 features satisfy the already mentioned characteistics of the declining and or endemic phases of the epidemic. Being a scientifically collected epidemiological information, it should reliably mean that the epidemic is waning or has become endemic.

The tuberculosis mortality information for India being deficient and not very reliable still apprears to suggest that the disease since the turn of the century has followed the same general trend as in some western countries endowed with the requisite notification data. Rogers (cited by Lankaster, 1920) at the time of World War I had estimated on the basis of post-mortem findings spread over 22 years that 17 per cent of the total deaths in hospitals were due to tuberculosis. The decennial estimate of crude mortality during the 1911-21 census period in India was 47 per mille. And, on that basis, the computed tuberculosis mortality would be 800 per 100,000 persons, if hospital deaths were truly representative of the general deaths. Lankaster (*loc. cit.*), after taking note of Roger's estimate of tuberculosis mortality, also quoted the other available statistics: Calcutta 2.1, Bombay 2.8, Madras 2.5 and Ahmedabad 5.9 per mille, and felt that the actual tuberculosis mortality would be 4 per mille or higher in most of the Indian cities. But, that was just about the position in Czechoslovakia (Radkovsky, 1959) around 1880 i.e., 40 years earlier. In any case, this is the earliest available rough estimate of tuberculosis mortality in India. McDougal's (1949) estimate of the specific mortality around 1949, however, was 200 per 100,000 persons whereas that of Frimodt-Moller for the same year for the Madanapalle town and surrounding area was 253 per 100,000 (Frimodt-Moller, 1960). Frimodt-Moller further reported that the mortality in his study area was reduced to 64.1 between 1951-53 and 21.1 between 1954-55 per 100,000 persons, which he could not explain except due to a natural decline plus the rigorous antituberculosis measures introduced by him in the study area. In the Bangalore district, not far from the Madanapalle study area, in the longitudinal epidemological study done under conditions with no antituberculosis measures at all being implemented, the estimated tuberculosis mortality during 1961-68 has been 100 per 100,000 persons (National Tuberculosis Institute, *loc. cit.*)

It is realised that the quality of the above given mortality statistics for India is very different and there must be some regional variations as well. Nonetheless, the estimates if plotted along a curve depicting the declining mortality in Czechoslovakia since 1880 will show striking similarity of the general trends (Radkovsky, *loc. cit.*). In other words, the tuberculosis epidemic in India perhaps has been following the same course, some 30 to 40 years behind, as in Czechoslovakia at least till 1950, when the era of potent antituberculosis drugs began. Before coming to such a conclusion it would be wise to guard against the possibility that the fall in tuberculosis mortality was not largely or entirely due to a fall in the general mortality. In a way generally similar to that in Czechoslovakia (Radkovsky, *loc. cit.*), the crude mortality in India also came down from 47 per mille in 1911-21 to 15 per mille in 1971, but the fall in tuberculosis mortality has been steeper i.e., falling from about 17 per cent contribuiton to the general mortality in 1920 to about 5 per cent now, comparing favourably with that of Czechoslovakia namely from 15 per cent contribution in 1900 to around 3 per cent in 1957.

In the opinion of many experienced clinicians in this country tuberculosis has undergone a considerable change in its clinical presentation, especially over the last quarter of a century. Many retrospective studies (Tuberculosis Association of India, 1958, 1968) despite their scientific weakness have clearly brought out the gradual change from a comparatively more acute and extensive disease among the young to a more chronic, less extensive disease among the elderly. The near consensus of these reports has been on a marked decrease of the concomitant complications of pulmonary tuberculosis, e.g., enteritis, laryngitis, amyloid disease, matted lymph glands with discharging sinuses, etc. It is significant that very similar changes were noticed in countries where tuberculosis has definitely declined. The evidence in India, therefore, cannot be brushed aside as unreliable.

DECLINE OF ENDEMICITY :

It has been contended that the available direct epidemiological information merely signifies no change in the prevalence of bacillary tuberculosis in the country, at least for about 2 decades (Table 1). And, that equal prevalence in urban and rural areas merely means that we are truly in the endemic phase of the disease. It has also been argued that such a conclusion would be in keeping with the long chequered history of India where empires rose and fell like nine pins leading to wide and repeated dispersal of the population and a good mixing of rural and urban people (Tuberculosis Association of India, 1968). It could be argued with equal force that poverty, malnutrition and congested living, that have been with us for long, would hardly favour the occurrence of conspicuous epidemiological changes over 2 or 3 decades. And, that long range indirect evidence in a chronic disease like tuberculosis cannot have less validity than the direct but short range epidemiological findings.

Some direct evidence in favour of a declining trend, however, has lately become available from the longitudinal epidemio-

TABLE 1—SHOWING PREVALENCE OF TUBERCULOSIS PER 1000 IN VARIOUS EPIDEMIOLOGICAL SURVEYS IN INDIA

Type of disease	Survey period				
	National survey 1955-58 (ICMR. 1959)	Madanapalle survey 1950-55 (Frimodt-Moller, 1960)	Delhi survey 1962 (Pamra. 1966)	Tumkur survey 1960-61 (Raj Narain *et al.*, 1963)	Bangalore survey 1961-68 (National Tuberculosis Institute. 1974)
Bacillary	4.0	4.1	4.0	4.1	4.1
Active abacillary	18.0		13.2	14.9	. .
Inactive abacillary		10.6			
Inactive insignificant		9.1	27.5		

logical surveys. In Table 2, the Bangalore study (National Tuberculosis Institute, *loc. cit.*) is representative of the natural time-trend of tuberculosis in a rural area whereas the Delhi study (Pamra *et al.*, 1968) gives the position in a slum population served by the New Delhi TB Centre providing treatment to the diagnosed patients of the area. In both the studies migration could have interfered with the findings, but the more conspicuous and impressive effect of drought in the former study suggests that migration may not have interfered much. Of course, the observed decline in the already quoted Madanapalle longitudinal survey (Frimodt-Moller, *loc. cit.*) was ascribed to the applied rigorous community control measures. Significantly, the decline observed in the infection as well as disease rates in the Madanapalle rural TB control area and the Bangalore natural time-trend rural area occurred first in the younger age groups, as was to be expected. It would, therefore, be reasonable to infer that there is a gradual but slow natural decline of tuberculosis in the country. That morbidity gets easily disturbed by adverse conditions like severe malnutrition, drought, etc., may inadvertently lead to the impression that tuberculosis is on the increase in the country or an area.

TABLE 2 · SHOWING LONGITUDINAL STUDIES OF PREVALENCE OF PULMONARY TUBERCULOSIS IN THE DELHI AND BANGALORE AREAS

Delhi area	Prevalence per mille of		
	Sputum positive cases	Abacillary active cases	Total cases
1962	4.0	13.2	17.2
1964	4.0	8.9	12.9
1967	4.0	9.7	13.7

Bangalore area	Prevalence per mille of sputum positive cases in age group (year)				
	5-14	15-34	35-54	⩾55	All
1961-63	0.94	3.77	6.16	11.46	4.06
1962-64	0.72	3.59	5.25	12.08	3.72
1964-66	0.36	3.04	6.04	10.10	3.37
1966-68	0.37	2.58	7.56	12.19	3.93

Apart from anything else, the "no change in prevalence" argument favouring endemicity is not helped by the sizeable and rapid turn-over observed in the composition of prevalence cases. Fifteen villages constituting a part of the sample of National Tuberculosis Survey, were resurveyed by the National Tuberculosis Institute after 5 years of the first survey (Raj Narain *et al.*, 1962). The prevalence rates of radiological disease were 1.7 per cent and 1.8 per cent and of sputum positive cases 0.36 per cent and 0.46 per cent respectively in the 2 surveys. But, of the 26 bacillary cases of the 1st survey, 14 had died, 4 could not be contacted, 6 had either become sputum negative or become x-ray normal/inactive and only 2 had maintained the *status quo* at the time of the subsequent survey. The fresh cases of the 2nd survey had come mostly from the x-ray normals and some from x-ray abnormals of the 1st survey. Similar was the experience from the longitudinal epidemiological study in the Bangalore area. In other words, the considerable incidence of fresh disease is being marked by the sizeable self-healing and deaths while in the endemic phase one would expect low prevalence and incidence rates.

The available evidence strongly suggests that India already has had more than one tuberculosis epidemics. At present we are somewhere on the descending limb of the latest epidemic. Grigg (*loc. cit.*) believes that the latest tuberculosis epidemic in England began in the 16th century and in Europe a hunderd years later. As in Eastern Europe, the latest tuberculosis epidemic in India may also have begun in the 17th century. The very slow or nil rate of decline is perhaps due to the generally unfavourable environment with personal privations and or droughts causing temporary fluctuations in the seemingly stable prevalence.

ROLE OF TUBERCULOSIS CONTROL PROGRAMMES:

Can such a slow decline in the epidemic be hastened by tuberculosis control programmes?

Environment is a fundamental factor in the ecological triad of tuberculosis: Socio-economic conditions can alter the epidemiological situation powerfully, for good or bad, over a decade or two. Since BCG vaccination has no influence on the naturally infected population and chemotherapy merely eliminates some cases but cannot prevent cases from occurring, a tuberculosis control programme has a low potential for influencing the epidemic curve, over a short period. So far, no reported study has successfully demonstrated the prime influence of antituberculosis programmes in controlling the disease, without a concomitant marked improvement in the standard of living of the people. But, control programmes certainly help.

Under the National Tuberculosis Programme, infectious cases of tuberculosis are being diagnosed at a comparatively late stage. They, presumably, would already have done a major part of the damage (spread of infection) that they are capable of doing. Moreover, a sufficiently large number of infectious cases (especially in the rural areas) has not so far come under effective chemotherapy, as has happened in some other countries or under study conditions. In the Madanapalle study area (Frimodt-Moller, *loc. cit.*) with control

TABLE 3—SHOWING ESTIMATED SPUTUM POSITIVE CASES IN AVERAGE INDIAN DISTRICT WITH AND WITHOUT DISTRICT TUBERCULOSIS PROGRAMME AT THE END OF ONE YEAR

	No. of cases at t_0 (prevalence)	Fate of prevalence cases during one year			Cases added (incidence)	No. of cases at t_1 (prevalence)
		Dead (sputum negative)	Cured (sputum negative)	Remaining (sputum positive)		
Without programme (natural time-trend)	5,000	700	1,000	3,300	1,700	5,000
With programme :						
Not diagnosed	4,224	590	845	2,789	1,700	4,761
Diagnosed	776	147	357	272		
Total	5,000	737	1,202	3,061		

measures applied vigorously it was after 2 decades that morbidity was reduced to less than half. The bacillus also possesses the power of mutation and under ineffective chemotherapy develops resistance to drugs quickly. Therefore, 2 crucial factors are needed before chemotherapy under the programme could help reduce tuberculosis: A significant number of infectious patients brought under effective chemotherapy and a couple of decades, if not more, of efficient effort. BCG vaccination to be really useful must (i) be given correctly and (ii) constantly cover a significant proprotion of the susceptibles in the community. These requirements are difficult but not impossible to meet.

It is only about a decade since our National Tuberculosis Programme has been in operation, but not so effectively. With the data available on the natural time-trend of tuberculosis and the operational study (Baily, 1972) of the average achievements under the programme, a simple estimate of the expected contribution to control of tuberculosis has been prepared (Table 3).

Of the average 776 truly sputum positive cases, including drug sensitive and resitant cases, diagnosed and put on treatment in one year in an average district under the programme, 147 would probably be dead (in spite of treatment), 357 would become sputum negative after applying differential cure rates for the sensitive and resistant cases, and 272 would continue to be sputum positive after one year of chemotherapy. With regard to the 4,224 undiagnosed cases in the community, the death, cure and *status quo* rates would be the same as in the uppermost row, as if there was no programme. This would mean that 239 cases would be less in the community after one year under the present efficiency of the programme. This rough calculation without the other epidemiological "flows" means a 4.8 per cent annual decrease, over and above the natural decline, which need not be scoffed at. A corollary would be that dividends would be more if case-findings were to be improved in the programme, rather than treatment results from the present 46 per cent sputum conversion at the end of one year to say 80 or 90 per cent.

SUMMARY

There are reasons to believe that India has had more than one epidemic of tuberculosis since the time of yore. The present epidemic might have started in the 17th century. There is evidence that the present epidemic has been declining since the turn of the 20th century. The natural decline at present is very slow, probably because of the prevailing poverty, malnutrition and over crowding. The District Tuberculosis Programme, even at the present level of efficiency, has a potential of accelerating the natural decline. Improved programme efficiency, especially under case-finding, is likely to produce a quicker decline. Rapid socio-economic development and improved standard of living could lead to a more spectacular decline in tuberculosis, but that effort would not strictly fall within the purview of a specific control programme.

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NOTES AND NEWS

V Asian and Australasian Congress of Anaesthesiology

Under the auspices of the Indian Society of Anaesthesiology the 5th Asian and Australasian Congress of Anaesthesiology will be held at New Delhi on September 23—27, 1978. Over 2000 delegates from different countries are expected to join this first joint Congress to be held in India for the first time. Further details may be had from Dr. G. R. Gode, Department of Anaesthesiology, A.I.I.M.S., Ansari Nagar, New Delhi-110 016.

Stress on Rural Health in the Sixth Plan

The Planning Commission has recommended an outlay of Rs. 1,319 crores for health and Rs. 765 crores for Family Welfare Programmes during the Sixth Plan period. For the year 1978-79 alone out of Rs. 146.48 crores agreed to by the Planning Commission for centrally sponsored and central scheme in the health sector, a major portion of Rs. 115.90 crores would be spent in rural areas. This information was given by the Union Minister of State for Health and Family Welfare, Mr Jagdambi Prasad Yadav to the Consultative Committee of Parliament attached to the Health Ministry which met recently at New Delhi.

Members noted that the proposed allocation for the Sixth Plan was more than double the Fifth Plan provision. However, there was a strong feeling that even the new outlays, which amount to hardly 3 per cent of the total plan provision, were far below the requirements for effectively meeting the health needs of the country.

International Congress on Prevention of Heart Diseases and Cardiac Rehabilitation

The above Congress will be held on September 11—12, 1978 at Bombay. Details may be had from Dr. C. V. Shah, India House, No. 2, Kemp's Corner, Bombay-400 036.

International Congress of Hormonal Steroids

The above Congress will be held at New Delhi on October 29—November 4, 1978. Detailed information may be had from Prof. K. R. Laumas, Chairman and Coordinator, Department of Reproductive Biology, A.I.I.M.S., Post Box No. 4503, New Delhi-110 016.

Indian Association of Sports Medicine

The 8th Annual Conference of the Association will be held on November 4-5, 1978 at Ludhiana. Detailed information may be had from Dr. S. Mukherjee, Department of Physiology, Christian Medical College, Ludhiana-141 008.

II International Migraine Symposium

The 2nd International Migraine Symposium will be held in London on September 28—29, 1978. Detailed information may be had from the Director, The Migraine Trust, 45 Great Osmond Street, London WC1N 3 HD.

XI International Congress of Leprosy

The 11th International Congress of Leprosy will be held on November 11—18, 1978 at Mexico City, Mexico. Detailed information about scientific programme may be had from Dr. Stanley G. Browne, Secretary General, International Leprosy Association, 57A Wimpole Street, London W1M, 7 DF, England and that about registration, hotel reservation, etc., from Prof. Fernande Latapi, XI International Congress of Leprosy, Association Mexicana de Accion Contra la Lepra A. C. or Vertiz 464, Mexico 7, D. F. Mexico.

XIII Session of General Assembly of Confederation of Medical Associations in Asia and Oceania

The 13th (mid-term) Council Meeting and Special Meeting of the General Assembly of Confederation of Medical Associations in Asia and Oceania (CMAAO) will be held on November 21—22, 1978 in Bali, Indonesia. Further details may be had from the Hony. General Secretary, IMA, IMA Headquarters, Indraprastha Marg, New Delhi-110 002.

CORRESPONDENCE

The Editor is not responsible for the views expressed by correspondents

Hospital Infections and Human Hair

SIR,—The role of human hair in the causation of staphylococcal hospital infection has been underestimated—particularly so with the advent of the tonsorial fashions—the hirsute cult. Stress has always been on nasal and skin carriers and fomites etc., references to the human hair being only a few (Summers *et al.*, 1965; Noble, 1966)

The hospital staff were investigated as a possible source of dissemination of staphylococci during a recent outbreak of staphylococcal infection in a hospital located in a tropical coastal town. From the properly "attired" operation theatre staff, surgeons and attendants, staff from intensive therapy wards and postoperative wards, hairs that protruded out of the hood and mask were plucked with sterile forceps and dropped directly into glucose broth Nasal swabs were also collected on serum coated swabs from the same individuals. Fifty-three per cent of hairs and only 32 per cent of nasal swabs were positive for staphylococci, 15 per cent being sterile.

Isolations from longer hairs (more than 10 cm.) were double that from shorter hairs.

These isolates were phage typed at the ICMR Staphylococci Phage Typing Centre, Delhi; only 22.9 per cent belonged to phage type I, II and III and remaining 77.1 per cent were untypable. The latter, as compared to 30 per cent of untypable isolates of Summers *et al.* (*loc. cit.*) from human pathological material is indeed rather high. This character of untypability is attributed to a capsule which staphylococci develop. This is lost when grown in minimum liquid glycerol medium and become typable (Witte, 1975).

This large percentage of untypable strains may be a reflection of the prevalent climatic condition in these coastal tropical towns i.e., highly humid salty atmosphere as contrasted with that of Liverpool (Summer *et al.*, *loc. cit.*).

We are, etc.,

Department of Microbiology,
Kasturba Medical College,
Manipal (S.K.), India.

P. G. Shivananda
S. Vikineswari
K. N. A. Rao

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REVIEWS

Human Population Genetics in India, Vol. 1—Edited by L. D. Sanghvi, V. Balakrishnan, H. M. Bhatia, P. K. Sukumaran and J. V. Undevia, 1974, Indian Society of Human Genetics, Bombay, Sole distributor: Orient Longman Ltd., New Delhi, 24.5 cm. × 16.4 cm., pp. 288, Rs. 120.00.

The proceedings of the First conference of the Indian Society of Human Genetics, held in Bombay in February 1974, have now been published under the above title. The conference was sponsored by the Indian Society of Human Genetics.

A total of 28 papers were presented, plus a foreword and a preface. The collection takes an inter-disciplinary forward look towards the development of human genetics in India.

The book is divided into 3 parts: Genetic marker studies (14 papers), analytical and theoretical studies (5) and dermatoglyphics and other studies (9). The work incorporated in the proceedings provides a cross section of recent trends of activities in the areas of general theory of population genetics and experimental investigations. In the words of the president, Indian Society of Human Genetics, the discipline is making a significant contribution towards an understanding of the problems of origin and evolution of man and gradually gaining a central position in research related to his health, reproduction and disease.

India because of heterogeneous populations and well-defined sub-groups has provided a laboratory for conducting investigations on genetic structure, and the extent and effects of inbreeding.

Generally speaking, the papers are short and the writers have tried to demonstrate their results with models and tables. As such, as is expected, the contents are highly technical.

A foreign reader could use the book as a means to gain an overview of the work done on human population genetics in India or he could use it as a model for developing an overview of the human population genetics problem in his own country i.e., as something of a checklist of the different disciplinary approaches and aspects to be considered. For the former function the wealth of data and the conceptional framework will be very useful; for the latter the theoretical part will be more useful.

It is not necessary to cover the entire collection. It will suffice if the reader selects some papers from each section. A non-geneticist may not derive much knowledge from the papers. Reference in the body of the text makes reading not easy-going.

A. Sen Gupta

Microcirculation, Vols. 1 and 2—Edited by John Grayson and Walter Zingg, Plenum Press, New York and London. Vol. 1: Blood-Vessel Interactions, Systems in Special Tissues, 1976, 23.2 cm. × 15.2 cm., pp. xxiii+420, $39.00, Vol. 2: Transport Mechanisms, Disease States, 1976, 23.2 cm. × 15.2 cm., pp. xvii+361, $ 39.00.

The two volumes contain the papers presented at the First World Congress for the Microcirculation held ar Toronto in June, 1973. In recent years all biological sciences have undergone a qualitative change in as much as the emphasis has shifted to cellular level and the approach is interdisciplinary. In the study of circulation this approach has led to application of mathematics, physics and chemistry by means of latest electronic technology. Studies by physiologists, pathologists, physicists and clinicians on circulation have penetrated to cellular and subcellular levels. This approach is apparent in the papers presented at the Congress.

Even two or three decades ago the number of investigators working in the field of microcirculation were only a few in number, even though the basic functions of the circulatory system actually take place in the microcirculatory level. The emphasis at that time was mainly on the anatomical details and the clinical aspects. The pioneers in this field, Professor August Krogh, Sir Thomas Lewis, Benjamin Zweifach and others formulated the basic concepts of microcirculation. The technology available to them for their studies were far from adequate, but as the volumes under review clearly show, most of their concepts have stood the test of time.

The present volumes have a wealth of papers with fascinating results and are packed with new informations on all aspects of microcirculation including its disturbance in such clinical conditions as, shock, graft rejection, diabetic angiopathy, cancer, muscular dystrophy and hypertension. It would seem that the knowledge in microcirculation would increase at a tremendous pace in the next decade.

Amitava Sen

Treatment of Skin Diseases—By J. S. Pasricha, Arnold-Heinemann, New Delhi, 1976, 22 cm. × 13.4 cm. pp. 168, Rs. 17.50.

In this concise and handy book, the author has made a sincere attempt to discuss chiefly about the treatment of various dermatoses along with a succint account of their clinical features. The endeavour, would be cordially welcomed by the numerous practising physicians who are not infrequently confronted with therapeutic problem of different dermatological disorders. However, it is quite evident that many of the relevant factors have not been incorporated in different places.

To summarise, while discussing about the general principles in chapter 2, the omission of keratolytics is conspicuous by its absence. Asides, in treating any of the common dermatoses in different chapters, some important and modern measures and medicines have not been mentioned at all, e.g., therapy with gamma-benzine-hexachloride in cases of scabies and pediculosis; tolnaftate in superficial mycoses; tetracycline in rosacea; rifampicin in leprosy; hydroquinone in melanodermas; dye (Neutral red) and vaccine in herpes (progenitales); systemic and intralesional corticosteroids in vitiligo; etc.

In "Appendix", the concluding section of the book, the author provides the most important and interesting informations regarding the proprietary medicines along with their compositions. Although this section would serve as a most useful and quite valuable guide to its readers, but, however, a multitude of most commonly used drugs have perhaps been inadvertently ignored in the list. Moreover, it would have been more attractive if the common indications of the drugs were annexed.

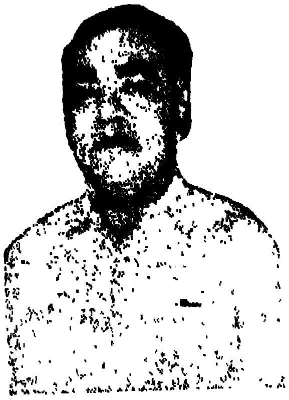
It would not be unseemly, therefore, to anticipate that the author would, in the subsequent edition to come, definitely re-evaluate these omissions and take all necessary care particularly to consider the "Appendix" thoroughly and liberally. However, this concise but substantial book would serve as a valuable and useful guide to the students and a vast number of practising physicians.

B. HALDAR

OBITUARIES

Dr. A. M. Gandhi

Dr. Ambalal M. Gandhi, a senior member of the Baroda Branch of IMA, passed away on 6-1-1978 after suffering from malignancy of pancreas. Born on 1-4-1919 at Kalol in North Gujarat, Dr. Gandhi graduated in medicine from G. S. Medical College, Bombay, in 1942. After specialising in radiology he joined the Baroda Medical College and S.S.G. Hospital as an honorary radiologist. He was associated with this institution for a long period. He is survived by his wife and five daughters.



DR. A. M. GANDHI

DR. M. D. PATEL

Dr. M. D. Patel

Dr. Motibhai Desaibhai Patel, a former President of Ahmedabad Branch and Gujarat State Branch of IMA and a former Vice-President of IMA (Hqrs.), passed away on 23-2-1978. Born in 1898 in a farmer's family at Navli in Koira district of Gujarat, Dr Patel rose to become one of the State's most successful surgeons. After qualifying as an F.R.C.S. from England he started consultant surgical practice at Bombay, but shortly gave it up on the advice of Late Sardar Ballavbhai Patel and joined the Seth V. S. General Hospital, Ahmedabad, to which he was attached for most of the period of his 45 years of active life.

Though a surgeon of great fame he found time for various academic and social activities and was even elected a member of Bombay State Legislative Council for a term. Besides being a member of the Gujarat Medical Council and the Medical Council of India from 1949 to 1965 he was for a time member of the Senate of Bombay University and later became Dean of the Faculty of Medicine of Gujarat University and its Acting Vice-Chancellor. He was an examiner for both undergraduate and postgraduate examinations in surgery of different universities. A founder-member of the Association of Surgeons of India, Dr. Patel was its Vice-President for some time. He was also associated with Viswabharati, Gujaral Vidya Sabha, NHL Municipal Medical College, Ahmedabad and other educational societies.

Dr. S. Jaffar Hossain

Dr. S. Jaffar Hossain, an active member of the Nilgiri Branch of IMA, passed away on 3-4-1978 at the age of 45. Born in 1953 at Chickmagalur Dr. Hossain graduated in medicine from Mysore Medical College in 1956. Joining Mysore Medical Service in the same year he served in various parts of Coorg district as Asstt. Surgeon till 1965 when he resigned to join as medical officer in the Arnakal Tea Estate, Vandiperiyar, Kerala. Till 1976 he served besides this concern in Nelliampathy T. E. in Palghat district, Neelamalai T. E. in the Nilgiris and Sutton T. E. in Coonnoor. He leaves behind his wife and three sons.

DR. S. JAFFAR HOSSAIN

DR. R. H. SHAH

Dr. R. H. Shah

Dr. Ramanick H. Shah, a member of the Bombay West Suburban Branch of IMA, passed away on 1-6-1978 at the age of 43. Born on 28-1-1935 Dr. Shah passed the S.S.C. Examination in 1955 topping the list of candidates from Cambay and studied in the Elphinstone College of Bombay. He graduated in medicine from Grant Medical College in 1966 and after a brief housemanship at the Parsee General Hospital in Bombay setup general practice at Borivli, a suburb of Bombay. He used to take active part in various conferences of the GPs in Bombay and present papers of clinical interest. He is survived by his wife and three children.

SUPPLEMENT

VOL. 71, NO. 2 : CALCUTTA : JULY 16, 1978

Association Notes

President's Letter on Golden Jubilee Study Tour

Dear Members,

We are now celebrating the Golden Jubilee of our Association this year. Some of our branches have already started the formal celebrations and many others have taken to increased participation in intensive community work as a prelude to the celebrations.

The celebrations at Headquarters of IMA is scheduled to be held in the second half of September in a befitting manner and the President of India is being approached to inaugurate the celebrations. Details of the celebrations will be duly communicated to all the branches and a record number of members is expected to participate and share the enjoyment of this unique opportunity.

It is customary in Indian communities, that after important celebrations a visit to temples of worship is usually undertaken. The IMA as the national organisation of doctors qualified in scientific medicine, can only think of the Temples of Learning first and foremost. The thirst for knowledge of newer horizons of medicine is unquenchable. This desire to know more is based on ambition to give better service to the community of our country. Such an aspiration can only be achieved by a Study Tour to be sponsored by IMA under the aegis of the IMA College of General Practitioners.

A Golden Jubilee Study Tour is being thought of in November this year. It is desirable to give a golden orientation to it this time by visiting the Eastern countries. It is also desirable that befitting the occasion we limit the number of participants to fifty or multiples thereof. This incidentally happens to be the Silver Jubilee of the Study Tours (the twenty-fifth). So all members with enthusiam as precious as gold and silver will eagerly await the publication of details of the Golden Jubilee Study Tour to the East.

J. V. R. SARMA
President

IMA President's Tour

The President of IMA, Dr. J. V. R. Sarma, attended several meetings at Delhi between 10-6-78 and 13-6-78. He attended a meeting of the Standing Committee on Family Planning, presided over a 2-day workshop seminar on 'Family planning propagation strategy for medical practitioners' and conducted a meeting of the Golden Jubilee Celebration Committee of IMA. The President left for Hyderabad on 13-6-78. At Hyderabad he attended the conference of Indian Contact Lens Society as Chief Guest on 17-6-78. He attended a meeting on 23-6-78 of the Board od Directors of IDPL on special invitation. On 26-6-78 he was present as Chief Guest at a gathering of the members of Giant International Club of Hyderabad where he spoke on 'Community Medicine'.

FICCI Awards, 1978

The IMA has been invited by the Federation of Indian Chambers of Commerce and Industry, New Delhi, to send nominations for the Awards to be given away by the Federation for the year 1978 for excellence and outstanding contribution to the following:

(a) *In case of companies and institutions*—(i) Research in Science and Technology; (ii) Rural development; (iii) Training and placement of disabled persons.

(b) *In case of individual scientists/technologists*—Three cash awards of Rs. 10,000/—for (i) Life science including agriculture; (ii) Physical science including mathematics; (iii) Technology with particular reference to its interaction with industry.

The nominations must be accompanied by data and pertinent information in respect of each nominee. FICCI would require in case of companies and institutions 9 copies of such materials along with a brief summary also in 9 copies. In case of cash awards for individuals, scientists and technologists 2 copies of the accompanying material together with 9 copies of brief summary should be submitted.

Local branches should send in their nominations through their respective State/Territorial branches so that the same may reach the IMA Headquarters by *September* 7, 1978.

Conditions of Private Medical Practitioners

Dr. P. K. Banerjee, Hony. Secretary, IMA College of General Practioners and Convener, Special Committee of Private Medical Practitioners has, in course of a circular, called upon the Hony. Secretaries of all State/Territorial and local branches of IMA as also the members of the Special Committee to collect information from different sectors about the present position of private practice and the difficulties that private medical practitioners are facing in their day-to-day professional life. He has also requested them to give their opinion on whether the service of the private medical practitioners can be gainfully utilised by the State Governments for the benefit of the public and how their service can be utilised for the National Health Scheme. The information along with the suggestions for remedial measures should be made available to the IMA Headquarters to enable the IMA Standing Committee on Private Medical Practitioners, which is likely to meet in near future, to take stock of the situation and initiate necessary action to help the members of the profession.

Refresher Course in Paediatrics and Pulmonary Tuberculosis

In course of a circular issued to the Hony. Secretaries of all State/Territorial Branches of IMA and the State Territorial Faculties of IMA College of General Practitioners, Dr. N. K. Khosla, Hony. Jt. Secretary of the College, states:

As in previous years IMA College of General Practitioners will organise a Refresher Course in 'Paediatrics and Pulmonary Tuberculosis' on November 6—11, 1978, in collaboration with the Tuberculosis Association of India and the Paediatrics Department of Maulana Azad Medical College, Delhi. Arrangements will be made for taking only 20 participants on 'first come, first served' basis. Registration charges for the course will be Rs. 60/- payable in advance along with applications by bank draft in favour of the Hony. Secretary, IMA College of General Practitioners, New Delhi. No application will be considered without the registration fee, which is nonrefundable. The Tuberculosis Association of India pays Rs. 100/- to each outstation participants as out of pocket expenses. Application for the course should reach the IMA Headquarters by *October* 15, 1978.

Branch Notes

ANDHRA PRADESH STATE BRANCH

At the 59th meeting of the State Working Committee of IMA held on 4-9-77 in the IMA Hall, Hyderabad, it was decided to request the Government to revise the pay-structure of doctors in service, rationalise their working hours and provide suitable residential accommodation for doctors working in PHCs and rural areas. In course of other resolutions the State W.C. urged the Government (1) to treat nursing homes and clinics of doctors as non-commercial establishments and levy electricity tariff on them at the rates for domestic consumers; (2) to exempt doctors from the purview of Weights and Measurement Act since doctors were not using weighing machines for commercial purpose; (3) to ensure a pre-check of clinical thermometers before these were released into the market to avoid any possible inconvenience to patients; (4) to enforce strictly the Drug Control Act and see that medical shops sold drugs only against doctors' prescriptions.

The State W. C. resolved to mobilise its different local branches in fighting quackery and suggested in the interest of closer relationship between the State Branch and the IMA (Hqrs) that the Hony. State Secretary should be taken as one of the representatives on the Central Working Committee of IMA.

Bhimavaram Branch—About 150 doctors from different corners of Andhra Pradesh attended a refresher course organised at Bhimavaram by the State Faculty of IMA College of GPs. The inaugural function was presided over by Dr. N. V. Krishna Reddy, President of the State Branch. Dr. B. Krishna Rao, President of the local branch, welcomed the participants and Dr. C. Satyanarayana, Hony. Secretary, presented a brief report. Dr. B. K. Sahay, Hony. Secretary of the State Faculty, referred to the importance of holding the refresher course in a mofussil town. Dr. L. Satyanarayana, Additional Director of Medical and Health Services, A.P., who formally inaugurated the course and released a souvenir brought out on this occasion, commended the work of the branch in running free clinics, immunisation campaign and other projects in the interest of the poorer sections of the society. The course was conducted in two sessions. The morning session was held with Dr. D. Jagannadha Reddy, former Vice-Chancellor of Sri Venkataswara University in the chair. Dr. Reddy spoke on the 'Causes and prevention of cerebral stroke'. Following him Dr. M. C. Ramalingeswara Rao, ex-Professor, Armed Forces Medical College, Poona, spoke on 'Practical aspects of surgery in trauma' and Dr. B. K. Sahay spoke on 'Emergencies in diabetes mellitus'. The evening session was held under the chairmanship of Dr. N. Suryanarayana. Earlier he unveiled the portrait of Dr. V. Viswanadha Raju in the IMA Building.

At the annual meeting held on 4-9-77 with Dr. K. G. V. V. Narayana the following were elected office-bearers for 1977-78; President—Dr. A. Ramkrishna Raju; Vice-President—Dr. G. Seetarama Raju; Hony. Secretary—Dr. I. Suryanarayana Rao; Jt. Secretary—Dr. S. Ramakrishnam Raju; Treasurer—Dr. C. Suryanarayana Raju; Member of Central Council—Dr. C. Sathyanarayana; Members of State Council—Dr. K. Suryanarayana and Dr. B. Ramachandra Raju.

A general meeting was held on 9-10-77 with Dr. Ramakrishna Raju in the chair. The Hony. Secretary announced that the chairmen of various committees had been appointed by the President as follows:

(1) Projects Committee—Dr. B. Krishna Rao; (2) Free Clinic Committee—Dr. P. Chalapathi Raju; (3) Advisory Committee—Dr. M. Ranganadha Raju; (4) Building Committee—Dr. G. Sundara Rama Raju; (5) Scientific Committee—Dr. M. Bapi Raju; (5) Library Committee—Dr. N. P. V. Satyanarayana Raju; (7) Sports Committee—Dr. V. Ramakrishna Raju; (8) Membership Development Committee—Dr. K. A. J. Verma, (9) Representative for *Undi*—Dr. K. Ramachandra Raju; (10) Representative for *Akividu*—Dr. Md. Hye; (11) Representative for *Gonapavaram*—Dr. K. V. P. R. Vishwanadha Raju.

It was decided to further improve the work of the free clinic being run by the branch. Dr. S. Ramakrishan Raju proposed the vote of thanks.

Krishna District Branch—The annual general meeting was held on 25-9-77 at the Dr. Giri Home of IMA at Machhilipatnam with Dr. V. Hanumantha Rao in the chair. Placing his report for 1976-77 Dr. V. Radhakrishna Murthy, Hony. Secretary, informed that the branch held 5 clinical meetings during the year where various types of cases were presented for discussion and organised 6 lecture meetings including one on World Health Day at which the speakers were Drs. G. S. Malkote, N. Krishna Rao, P. Haranarayana, C. V. Subba Rao, Vaskar Reddy and V. Subba Rao. As a part of its community health activities the branch selected Harijanawadi locality of Parnasala village for conducting a health check-up of the villagers and arranging for free distribution of medicine to the needy people. Besides weekly visits by two doctors a special check-up by different specialists was arranged on 18-9-77 which benefited about 400 people. Immunisation of the local children was carried out on 23-9-77. A weekly diabetic clinic was started in the Government Hospital to serve the local people. The prize donated by Dr. D Subba Rao in memory of late Dr. Yellapragada Subba Rao. was awarded this year to Dr. G. V. Ramu for his essay on 'Manipulations and management of filariasis. Before concluding the report the Hony. Secretary thanked Dr. C. Mullikharjuna Rao, Dr. Subba Rao, Dr. Aswini Kumar and the President for the cooperation received from them during his tenure.

In the scientific session that followed Dr. R. B. Krishna Murthy, Dr. K. Gangadhara Rao, Dr. K. Sarada and Dr. K. J. Rama Murthy gave talks on topics of their respective specialities.

Dr. J. V. R. Sarma, President-elect of IMA (Hqrs.) and Dr. S. Chandramouli, President-elect of the State Branch, were felicitated on this occasion.

Nizamabad Branch—A general meeting was held on 2-10-77 at Headquarters' Hospital, Nizamabad, with Dr. M. Gopala Reddy in the chair. At the outset there was a scienific session in which Dr. Manohar Rao, Professor of Medicine, Osmania Medical College, spoke on 'Aetiology and management of cerebral stroke'; Dr. C. Jalpath Rao presented a case of heart block for discussion and Dr. Sudershan Rao, Asstt. Director of Nutrition, Department of Health, explained to the members Government's latest scheme on rural health which was going to be implemented in the rural areas of the State.

Later the following were elected office-bearers for 1977-78:

President—Dr. M. Gopala Reddy; Vice-President—Dr. C. Jalapath Rao; Hony. Secretary—Dr. R. Nagabhusanam; Jt. Secretary—Dr. Ram Mohan Rao; Treasurer—Dr. Gopal Rao Naidu; Members of Executive Committee—Drs. Madhusudan Reddy, Ranganatham, (Mrs) Tulsamma, Sreedhar Rao, Sundar Rogers and A. V. Subba Rao; Member of State Council—Dr. Madhusudan Reddy; Member of Central Council—Dr. K. B. Sharma.

Razole Branch—Between January and October 1977 the branch organised several mini eye camps besides one big eye camp. A large number of people including children and women was examined and treated in the camps by Drs. B. Janaki Rama Rao, K. Sitarama Rao, A. Rajkumari and B. Venuswami for various eye complaints. From 9-4-77 to 17-4-77 the branch organised a big eye camp at the Government hospital, Razole, with the help of the mobile eye unit of Government General Hospital, Kakinada. The camp was inaugurated by Sri Gopalakrishna Rao, local M.L.A. at a function held under the chairmanship of Dr. B. Sitaramaiya, M.O., Shri Satya Sai Hospital, Puttaparthi. The attending specialists included Drs . C. Ramakrishna Rao, N. Venkaramaiya, S. Venkataswara Rao, P. Subba Rao, B. Janaki Rama Rao, K. Sitarama Rao, C. Sudarshana Rao and Dr. (Mrs) Annapurna. Medical officers and staff of the Government Hospital also extended their full cooperation. The total number of patients examined and and treated was 1457 and major operations were performed in 140 cases and refraction done in 312 cases. As many as 450 school children were examined. D.P.T. injection was given to 253 children and D.T. injection was given to 150 children. The valedictory function was held on 17-4-77 which was addressed by Dr. Sundarsiva Rao, Principal, Rangaraya Medical College and Dr. B. N. Janaki Rama Rao, President of the function. Dr.. N. V. Krishna Reddy, President of the A.P. State Branch, distributed mementos to the doctors and assistants from the mobile eye units and Dr. B. Sitaramaiya distributed spectacles to the operated patients. Later a refresher course was held in which lectures were delivered by Drs. (Kumari) C.V. Ramani, P. S. N. Murthy, R. V. Krishnamurthy, Venkataswara Rao, B. Suryanarayana, R. K. Chaudari, C. Ramakrishna Rao and K. Kotilingam. Dr. Deshapandey, Hony. State Secretary, gave an account of the activities of the State Faculty of IMA College of G.Ps. Dr. Sundarshiva Rao acted as the moderator and Dr. A. V. Appa Rao proposed the vote of thanks.

Tadepalligudem Branch—Between May and September 1977 several clinical meetings were held besides a round-table discussion on "Anaesthetic problems in general practice" at which D.r. D. Viswanath from Vishakhapatnam, was present as Chief Guest. In the clinical meetings the following speakers gave talks on the subjects mentioned against their names:

Dr. P. Shivaramakrishnan Rao—Clinical approach to and management of cases of coma; Dr. S. R. Ranganathan—Management of burns in general practice; Dr. C. Dharma Rao—Orthopaedic problems in general practice; Dr. K. Kotalingam—Radiological diagnosis of chest diseases.

The meetings were conducted by Dr. T. Rajeswara Rao, President of the branch and the speakers were introduced by Dr. K. Satyanarayana, Hony. Secretary. Dr. S. Panduranga Rao, member of the State Working Committee and Vice-President, supervised these activities periodically.

ASSAM STATE BRANCH

Golaghat Branch—An emergent meeting was held on 31-10-77 with Dr. C. Dhar, Preisdent of the branch, in the chair. The meeting discussed the problems arising out of the hunger strike launched by members of AMSA and their proposed cease-work from 3-11-77. The meeting expressed its deep concern at the failure of the Government to come to a settlement and urged the authorities concerned to avert the misery of the people by trying to bring about an early and amicable settlement of the issue.

Tinsukia Branch—A meeting was held on 3-9-77 at the residence of Dr. S. Sen with Dr. M. Hatikakoti in the chair. At the outset the meeting condoled the demise of Dr. R. M. Deb Roy, a former Hony. Secretary of Dibrugarh Branch and adopted a resolution conveying heartfelt sympathy to the bereaved family. Members paid their silent homage to the memory of the departed soul by standing in silence for 2 minutes. After hearing the reports from Dr. D. Bhagwati SDMO, Tinsukia, on people's distress in the wake of the recent flood-havoc in different parts of Assam, the house decided to send relief to the flood-affected people by way of contribution of medicines. The meeting closed with a talk by Dr. P. K Sarma on 'Hypertension'.

BENGAL STATE BRANCH

Asansol Branch—The annual general meeting was held on 7-10-77 at the IMA House, Asansol. Placing his report for 1976-77 the Hony. Secretary Dr. Jayanta Lahiri gave an account of the efforts of the members for having thier own building which was inaugurated by Dr. Mrinal Nandi, President of the State Branch on 8-5-77. He also expressed his gratitude on behalf of the branch to Sri S. N. Gorai for his donation and valuable suggestions which enabled them to realise their dream and explained under what circumstances further construction of the building had to be stopped and decision had to be taken to let out a few rooms. Enumerating the other activities of the branch he said several sight-seeing tours were arranged during the year to Bakreswar, Masanjore and Taraptih in Birbhum district which were attended by members along with their families. The branch organised a protest meeting to condemn the assault on the medical officers of Burnpur Hospital and East Nimcha Colliery. Dr. P. K. Ghosh from Bengal State Branch came to Asansol to make an on-the-spot study of the incidents. The branch duly observed World Health Day on 7-4-77 by inviting Dr. Sisir Kumar Bose, Director, Institute of Child Health, Calcutta, to speak on 'Protective immunisation of children'. It also observed National Consolidation and Re-dedication Day on 1-7-77.

The following were elected office-bearers for 1977-78:

President—Dr. I. B. Bhattacharya; Vice-Presidents—Drs. Y. N. Mehrotra, L. C. Ghosh, K. Roy and M. S. Banik; Hony. Secretary—Dr. Somnath Sur; Jt. Secretaries—Drs. S. N. Rajguru, N. C. Modak, J. Sanyal and Nikhilesh Mukherjee; Treasurer—Dr. Balaram Mukherjee; Members of State Coun-Council I. B. Bhatttacherjee, Somnath Sur, B. B. Ghatak and Sudhin Roy; Member of Central Council—Dr. S. K. Ghatak; Internal Auditors—Dr. M. C. Mukherjee and Dr. B. B. Chatterjee.

Barasat Branch—The annual general meeting was held on 2- 0-77 at the IMA House. Placing his report for 1976-77 the Hony. Secretary informed the house that the members rendered community health service during the year with main stress on school health examination and immunisation of children along with distribution of iron folic acid capsules and vitamin—A syrup. The branch also organised a socio-medical conference, which was inaugurated by the State's Health Minister, who appreciatd the activities of the branch and proposed to set up one polio vaccine centre at Barasat. A seminar was also arranged by the branch on the topics 'Street accident', 'Malnutrition amongst children', 'Rural environmental sanitation' and 'Maternity and child welfare'.

The biggest achievement of the branch during the year was the construction of the local IMA Building, the foundation stone of which was laid on 14-11-76.

Calcutta Branch – The branch organised the Health Week and the Health Education Programme on October 8-9, 1977, at Databya Chikitsa Kendra on Tollygunge Road in collaboration with the NSS of the Calcutta University and Dakshin Kalikata Nagarik Samity.

Dr. Salil Datta, President of the Branch, presided over the function and Prof. Salil Banerjee, Programme Co-ordinator of the NSS, Calcutta University, was present as Chief Guest. A lively discussion was held on the theme 'Immunise and protect your child'. Dr. Bimal Chakrabarty, Convener and Asstt. Secretary, initiated the discussion which was followed up by Dr. Hoimi Prasad Basu, Hony. Secretary of the branch, Dr. Ajit Roy, Past President of the State Branch, Dr. Sukomal Sen and Prof. Bela Bose of Biharilal College of Home Science. Besides the symposium a health exhibition was arranged to educate mothers from the slum areas in nutrition. They were given practical demonstration by girl students from Biharilal College on how to maintain food value in cooking. The other features of the Health Week included a special film show on 'Baby care and family welfare' by courtesy of the Health Department of the Government of West Bengal and administration of triple antigen to 80 babies from the slum areas of Tollygunge.

BIHAR STATE BRANCH

Motihari Branch - The annual meeting was held on 9-10-77. Placing his report for 1976-77 the Hony Secretary, Dr. A. K. Srivastava informed the house that the branch had 35 members on the roll and it had 8 meetings during the year each of which concluded with a clinical session. The speakers on scientific subjects included Drs. S. Sharan, B. D. Gupta, B. P. Pandey, N. P. Verma, S. N. P. Verma, A. Prasad, A. K. Srivastava and (Smt) Chandralata Jha. In observance of the World Health Day it organised a socio-medical meeting presided over by Dr. D. P. Chaudhuri, District Magistrate, Champaran. Drs. S. Sharan, Quamuruddin, K. N. Jha, Sitaram Prasad, R. P. Sinha, A. K. Srivastava and Shri Kaifi took part in the discussion on the theme "Immunise and protect your children'. During the year as a part of its school health service the branch examined 317 children and gave free medical advice to 52 of them. Talks on health education were given by Drs. A. Prasad, S. S. Sharan and Quamuruddin. Immunisation of 309 children against poliomyelitis, typhoid, cholera, etc. was undertaken and free consultation was given to 522 persons during the Health Week. One tubewell was sunk and 31 wells were disinfected. Durtng the outbreak of gastroenteritis in the town a team of members headed by Dr. Sitaram Prasad rendered medical relief to the people in the affecetd mahallas with the help of C.M.O., Motihari. The branch observed the National Consolidation and Re-dedication Day by holding a meeting and a press conference. It held an extra-ordinary meeting on 2-8-77 condemning the arrest of Dr. C.P. Sinha of Sitamari. It also protested the attempt made at maligning the medical profession in course of an editorial in the *Indian Nation* dated 30-6-77.

At the annual meeting held on 9-10-77 the following were elected office-bearers for 1977-78: President- Dr. Quamuruddin; Vice-Presidents—Dr. S. K. Roy and Dr. K. K. Tiwary; Hony. Secreraey—Dr. Ashok Kumar Shrivastava; Jt. Secretary—Dr. Tarakeshwar Prasad; Addl. Secretary—Dr. C. B. Roy; Treasurer—Dr. B. D. Gupta; Member of Central Council—Dr. S. Sharan; Members of State Council—Drs. M. A. Rahman, Tarakeshwar Prasad and E. H. Khan; Members of Executive Body—Drs. M. P. Verma, M. A. Rahman, D. D. Chaudhary, S. Sharan, B. D. Pandey, E. H. Khan, (Smt) C. L. Jha, (Smt) Shanti Shrivastava and S. N. P. Verma.

Muzaffarpur Branch— At a general meeting held on 29-10-77 under the presidentship of Dr. R. S. P. Agrawal it was decided to improve the working of the R. K. and K. P. Charitable Dispensary being run by the branch at the IMA building by deputing one member on every week-day for giving free medical advice and arranging for pathological and radiological investigations by members at concessional rate. It was also decided to request the State Branch to furnish details of work being done and proposed to be done for the benefit of doctors so that the same could be circulated among the new members joining the IMA.

GUJARAT STATE BRANCH

Baroda North Branch— The new branch came into being from 1-10-77 with 23 members. Dr. M. S. Chitle and Dr. D. S. Shah were elected President and Hony. Secretary respectively.

Kadi Branch The new branch was formed on 1-10-77 with 15 members and Dr. M. C. Shah was elected President and Dr. B. K. Parikh, Hony. Secrerary.

HARYANA STATE BRANCH

The State Council meeting was held on 11-9-77 at the residence of Dr. (Capt.) B. S. Grewal with Dr. D. B. Minocha, President of the State Branch, in the chair. 24 members representing different branches were present. The Council decided to request all members to have the name of IMA incorporated in all camps being organised by their members. Reporting on the pension cases of two retired rural doctors Dr. Dharam Paul informed the shouse that the matter was being pursued with the Health Minister. The house was also informed that on behalf of the State Branch Dr. Kamlesh Banshal was preparng the design for identity card for IMA members and the same will be presented in the next Council meeting. Dr. N. K. Varma was requested to go into the details of the resident system in the State Medical College at Rohtak. The difficulties of the practitioners in the matter of supply of medicines of daily use specially morphine, pethidine, tinctuees, etc. were discussed and it was decided to issue reminders to the Excise and TaxationDepartments urging them to relax rules to facilitate supply of these medicines to private doctors.

On the scrutiny of the ballot papers received from different branches, the results of the election of President and two Vice-Presidents were declared as follows: President—Dr. J. P. Sharma (Yamuna Nagar); Sr. Vice-President—Dr. Devraj Gupta (Ambala City); Vice-President—Dr. M. S. Lamba (Karnal). It was announced that in response to the President's appeal for generous donation to the Chief Minister's Flood Relief Fund, the following branches had sent the amounts noted against their names; Gurgaon Branch—Rs. 250/-, Dubwali Branch—Rs. 900/-, Ambala Branch—Rs. 700/-, Hissar Branch—Rs. 2,151/-.

KARNATAKA STATE BRANCH

The following were elected office-bearers for the year 1977-78 at the Annual State Council meeting held at Mysore on 7-10-77: President—Dr R. R. Joshi; First Vice-President—Dr. V. T. Kothari; Second Vice-President—Dr. S. Sivanappa; Hony. State Secretary—Dr. K. S. Sekhar; Hony. Jt. Secretary—Dr. K. M. Prakash; Treasurer—Dr. N. R. Acharya; Editor, *Karnataka Medical Journal*—Dr. K. V. Ghorpade; Membees of Central Working Committee—Drs. A. [illegible], Narendran, B. T. Sampathkumar, N. A. Narasimhachar and M. Rajasekharappa; Alternate Members—Drs. K. S. Sreenivasa Murthy, N. R. Acharya, A. B. Subrahmanyam and P. Narayan; Internal Auditor—Dr. M. C. Papanna.

Gulegudd Branch—The branch was inaugurated at a function held on 24-7-77 with Dr. S. N. Koulgud, Professor and Head of the Department of Obstetrics and Gynaecology, K. M. C., Hubli, in the chair. The branch was formally declared open by Dr. M. S. Ananta Raju, Professor and Head of the Department of Surgery of the same College. A symposium on 'Diabetes Mellitus' was also arranged on this occasion and it was attended by a good number of members from the neighbouring branches. The following were elected office-bearers of the new branch: President—Dr. V. C. Sampagourd; Secretary—Dr. I. D. Koppal; Jt. Secretary and Treasurer—Dr. R. U. Zanvar.

Hubli Branch—A Zonal Inter-branch Conference hosted by the branch was held on 12-6-77 at Sawai Gandharva Hall, Hubli. Delegates came besides the local branch from Dandeli, Davangere, Dharwar, Gadag, Haveri, Hubli, Naragund, Ranebennur, Savanur and Sirsi branches. The inaugural function started with an invocation by Dr. (Mrs.) B. P. Sontakkee followed by the welcome address by Dr. (Mrs) S. M. Kalliyanpurkar and introduction of the Chief Guest, Sri G. N. Sabahit by Dr. P. S. Rao, Chairman. The Chief Guest and other guests who addressed the conference stressed in their speeches the utility of holding such inter-zonal conference which brought the neighbouring branches of IMA closer and enabled the members to establish intimate contact with one another and discuss their common problems. The inaugural function closed with the vote of thanks proposed by Dr. U. T. Runwal, Organising Secretary. In the scientific sessions that followed a guest lecture was delivered by Dr. P. B. Sulakhe with Dr. N. M. Prabhu in the chair and scientific papers were presented by Drs. R. B. Patil, L. S. Kulkarni, S. Sreenivasachar and R. D. Kulkarni with Dr. M. S. Anantharaju acting as the Chairman. Another guest lecture was delivered by Dr. H Gurupadappa with Dr. M. M. Joshi in the chair. A 'Brains Trust' was also organised on this occasion with Dr. A. V. Medlery acting as the convener and Dr. (Mrs.) S. M. Kalliyanpurkar as the moderator. The panel consisted of Drs. S. V. Nadig, S. G. Joshi, S. N. Koulgud, K. H. Jituri, E. S. Gokavi, P. V. Datti and (Mrs) S. Datye. The programme closed with a discussion on the problems of the Association over which Dr. (Mrs) Kalliyanpurkar presided while the main speaker was Dr. A. Nagraj. Representatives from different branches took lively part in the discussion.

KERALA STATE BRANCH

Kasaragod Branch—The annual meeting was held on 1-10-77. Placing his report for the 1976-77 Dr. K. V. Mahabala Bhat, Hony. Secretary, informed the members that a large number of clinical meetings and a few non-clinical meetings were held during the year. The following were the speakers and the topics at different clinical meetings: Dr. K. R. Ballal—'The care of severely injured patients in accidents'; Dr. B. H. Krishna Moorthy—'Management of Anaemia in general practice'; Dr. S. V. Shastry—'Investigation and treatment of leprosy'; Dr. K. R. Shetty—'Medical practice in USA'; Dr. Govind Raj—'Management of common respiratory problems'; Dr. O. P. Kapoor—'Common problems in general practice'; Dr. V. V. Mody—'Management of hypertension'. Two panel discussions were organised during the year. The subject for the first one was 'Peptic ulcer' and the participants included Drs. K. P. Krishnan Nair, B. S. Rao, P. V. Bhat and Balasubrahmanya. The subject for the second one was 'Clinical management of shock' and the participants included Drs. B. S. Rao, M. G. Bhat. U. A. Mohammed and (Mrs) Jaya Bhat. Mr. Keshab Bhat, Chartered Accountant, addressed the members on 'How to keep your accounts'. As a part of health education programme the branch arranged a few public health lectures. The following were the speakers: Dr. K. V. Mahabala Bhat—'Venereal disease'; Dr. (Mrs) Lalitha S. N. Bhat—'Pregnancy and child care'; Dr. M. N. Shelnad—'Family Planning'; Dr. M. Sripad Rao—'Addiction to drugs'; Dr. B. S. Rao—'Chest and heart diseases'. The branch also organised a few medical camps where Drs. K. V. Mahabala Bhat, B. S. Rao, Abdul Hameed, K. N. Bhat and (Mrs) Sudha N. Kamath rendered service.

The following were elected office-bearers for 1977-78: President—Dr. (Capt) K. A. Shetty; Vice-President—Dr. U. A. Mohammed and Dr H. V. Kamath; Hony. Secretary—Dr. K. G. Pai; Jt. Secretary—Dr. P. K. Bhat; Treasurer—Dr H. Harihara Iyer; Members of Executive Committee—Drs. B. S. Rao, H. Vishwanatha Kamath, K. V. Mahabala Bhat, A. C. Padmanabhan, (Mrs) Prema Gopinath and K. Sarveshwara Bhat; Member of State Working Committee—Dr. B. S. Rao; Alternative member—Dr. A. T. A. Rahman; Members of State Council—Drs. M. Sripad Rao, N. Krishan Bhat and K. P. Shenoy; Member of Central Council—Dr. K. V. Mahabala Bhat.

Trivandrum Branch—The annual general meeting was held on 15-10-77 at the Trivandrum Club. At the outset the meeting condoled the demise of Dr. Balakrishnan, a former Editor of *Kerala Medical Journal*. Prof. R. Ananthanarayanan recalled the qualities of head and heart of the deceased following which 2 minutes' silence was observed as a mark of respect to his memory. The annual report and the statement of accounts for 1976-77 were next placed by the Hony. Secretary both of which were adopted after some discussion. The following were elected office-bearers for 1977-78: President—Dr.

M. Sambasivam; Vice-Presidents—Dr. V. Dasayyan and Dr. P. V. Muraleedharan Menon; Hony. Secretary—Dr. K. Ramakrishnan Nair; Jt. Secretary—Dr. Lalithamma N.; Treasurer—Dr. K. Manomohan; Members of State Working Committee—Dr. R. Ananthanarayanan and Dr. P. V. George; Member of Central Council—Dr. R. Ananthanarayanan; Members of State Council—Drs. M. P. Manomohan, S. Hariharan and M. Madhusoodhanan Nair; Members of Executive Committee Drs. V. C. Mathew Roy, S. Subramonia Iyer, M. D. Menon, G. Lalitha, Joy Philip, V. Snehapalan and P. V. George. Later a scientific session was held under the joint auspices of the branch and the Kerala Chapter of Indian Rheumatism Association. The session commenced with a lecture on 'Neontal surgical problems' by Prof. N. A. Myers, Chairman, Department of Surgery, Royal Children's Hospital, Melbourne and Commonwealth Visiting Professor. This was followed by a symposium on Osteoarthritis in which Dr. P. P. Josheph, Dr. P. B. Muraleedhara Menon and Dr. K. A. Venugopalan Nair dealt with clinical features, non-surgical management and surgical treatment respectively. Professors R. Raman Nair, Sugan George and M. Sambasivan were 'at home' to the members and the guests.

PUNJAB STATE BRANCH

Amritsar Branch—The annual general meeting was held on 9-10-77 at the Medical College. The meeting was inaugurated by Dr. Baldev Prakash, M.P. Speaking on the occasion Dr. Prakash criticised the rural health plan proposed by the Goveenment of India and assured that he would try to represent the views of IMA in the Parliament. He also praised the community health activities of IMA. In the election of office-bearers that followed the following were declared elected for 1977-78:

President—Dr. Dharampal Wadhawan; Vice-President—Dr. Santokh Singh and Dr. Gurudev Singh Girgla; Hony. Secretary—Dr. Paramjit Singh Khorana; Jt. Secretary—Dr. V. K. Vedi; Organising Secretary—Dr. H. S. Bajwa; Finance Secretary—Dr. Avtar Singh Aurora; Literary Secretary—Dr. Himmat Singh Sachdeva; Club Secrerary—Dr. Mukhtiar Singh.

Muktsar Branch—The annual meeting was held on 6-10-77. Placing his report for 1976-77 the Hony. Secrerary informed the house that the branch had 10 executive and 12 general meetings during the year. It organised 10 scientific meetings including 2 refresher courses. In the scientific meetings the speakers were Drs. S. B. Khurana, K. C. Mishra, J. C. Mangla, V. K. Sood, S. Khurana, Jagat Bhushan, C. L. Jagga, P. Bansal, Baldev Raj, A. K. Wadhwa, B. R. Setia and Prithipal Singh. The refresher courses were attended by doctors from Bhatinda, Malout, Gidderhana, Abohar, Fazilka, Baridkot, Ferozepur and Jaito. Members of the branch took active part in community health service and family planning programme. Dr. D. P. Bansal and Dr. A. K. Wadhwa rendered free service in the health camps organised by the Rotary Club. Dr. Baldev Raj and Dr. (Mrs) Raj attended a rural camp at Rupana. Drs. Tarsem Bansal, Usha Gupta, S. K. Jagga and Prithipal Singh took part in the family planning programme. The branch observed Health Week in April 1977 during which 1892 children were inoculated against typhoid and cholera and a large number of people was given education in the prevention of communicable diseases through cinema slides and hand-bills. The branch observed National Consolidation and Re-dedication Day on 1-7-77 by holding a meeting and later presenting a memorandum to the S.D.O. (Civil) Muktsar. The branch had 25 members on the roll as on 30-9-77.

The following were elected office-bearers for the year 1977-78: President—Dr. Baldev Raj; Vice-President—Dr. Bal Raj Setia and Dr. Usha Gupta; Hony. Secretary—Dr. Darshan Lal Bansal; Jt. Secretary and Treasurer—Dr. Joygopal Bansal; Member of Central Council—Dr. P. Joshi.

TAMILNADU STATE BRANCH

Kanyakumari Branch—A free medical camp organised by the branch was inaugurated by Sri K. Monoharan, Tamil Nadu's Minister for Finance, at Kottaram village on 8-9-77. The Minister commended the members of the branch for their devoted service to the poor people in the rural areas. A team of 20 doctors and 10 para-medical workers treated about 763 patients for various ailments. On 30-9-77 another camp was inaugurated at Kovalam, a fishermen's village, by Sri C. Krishnan, the local MLA. About 1133 persons were checked up and treated for various ailemts by 13 doctors with the assistance of 10 para-medical persons. The cases of two patients in the first camp and another two patients in the second camp, who needed surgery, were taken up by the Secretary of the branch for further treatment. Besides the two camps the work of the weekly medical camp opened at Ootuperai Theru, Vadasseri, was carried on by 5 lady members of the branch. An immunisation programme was undertaken at Majalamoodu where 13 babies were immunised.

Madras City Branch—The slum dispensaries run by the branch at Visalakshipmman Thottam and Srinivasapuram rendered valuable service to the slum dwellers at the IMA Urban Family Welfare Centre. Besides immunisation of 586 children, 7 IUD and 33 vascctomy cases were done.

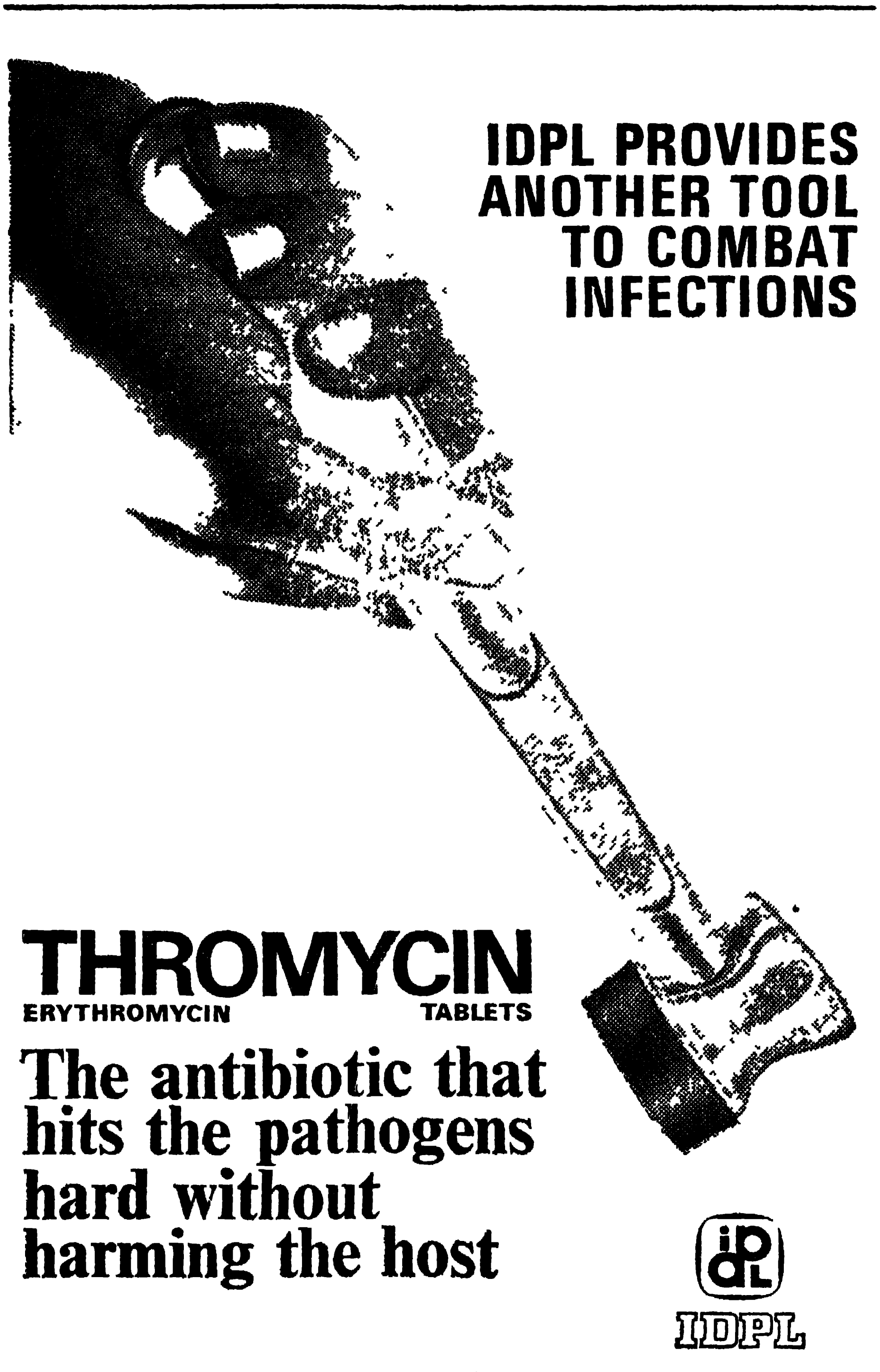
Madurai Branch—A free medical check-up was conducted on 25-9-77 at Shivananda Tapovanam, Thoppur, where 344 patients were examined and given free advice and treatment. Another free medical check-up of 184 patients was carried out at Thiruppalai village on 4th, 11th and 18th September 1977 and they were also given free treatment.

Pattukottai Branch—On 16-9-77 15 children of Bathlehem Orphanage were given double antigen vaccination by members of the branch.

UTTAR PRADESH STATE BRANCH

Dehradun Branch—A meeting was held on 26-7-77 with Dr. B. S. Pandhi in the chair. At the outset the President offered birthday greetings to members whose birthdays fell in June and also welcomed the new members and guests including Dr. A. N. Sharma, an eye specialist from Banaras. Following this Col. M. S. Bamrah, surgical specialist, Military Hospital, Dehradun, spoke on 'Shock and its management with particular reference to surgical shock'. Next, Col. Puri spoke on 'Medical aspects of shock, specially cardiogenic shock' and Dr. V. P. Dutta, C.M.O., Dehradun, explained to the members the Malaria Control Programme.

At a clinical meeting held on 14-7-77 with Dr. Pandhi in the chair, Col. V. S. Sharma presented a case of rheumatic carditis with mitral stenosis. Following this Dr. Kuldeep Dutta spoke on 'Management of cardiac arrhythmias after myocardial infarction'.



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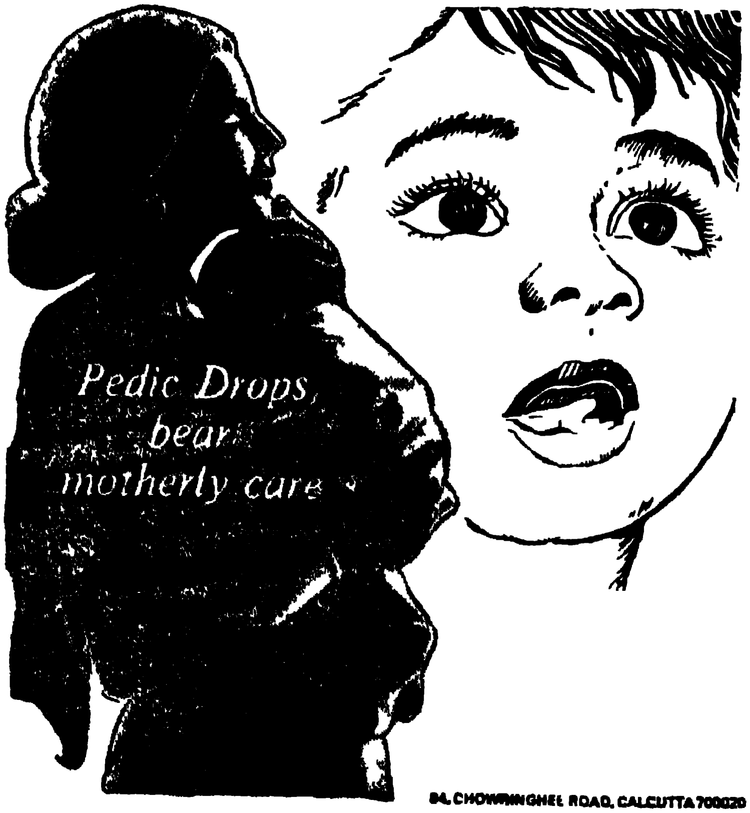

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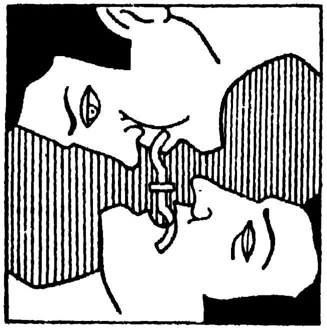

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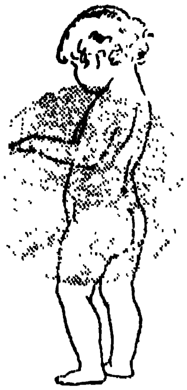

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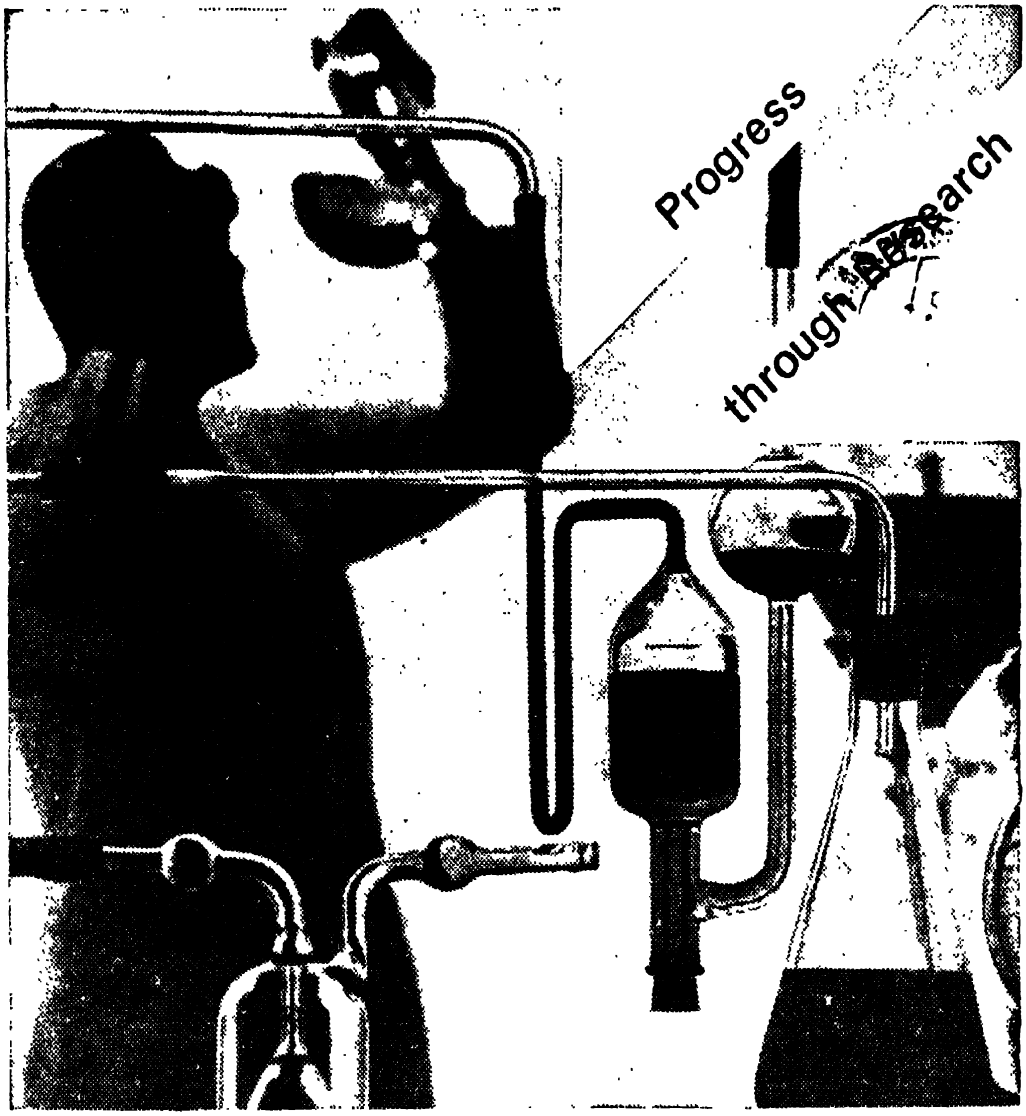

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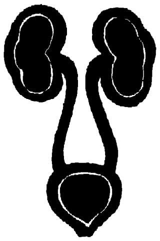

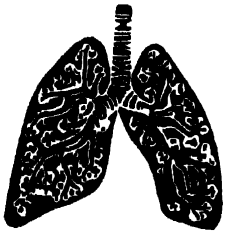

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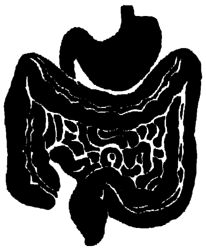

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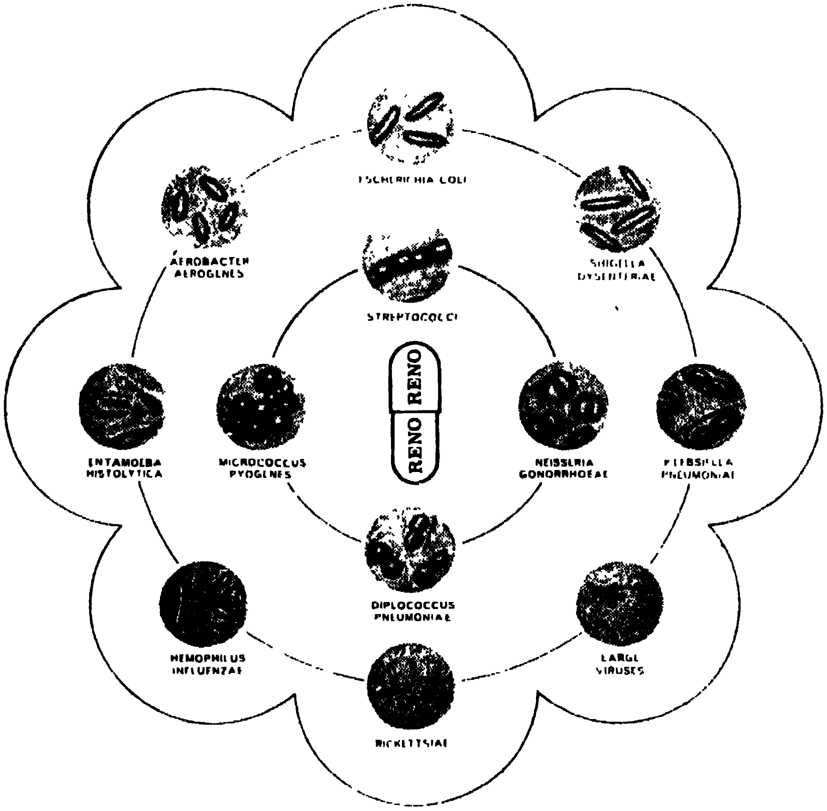

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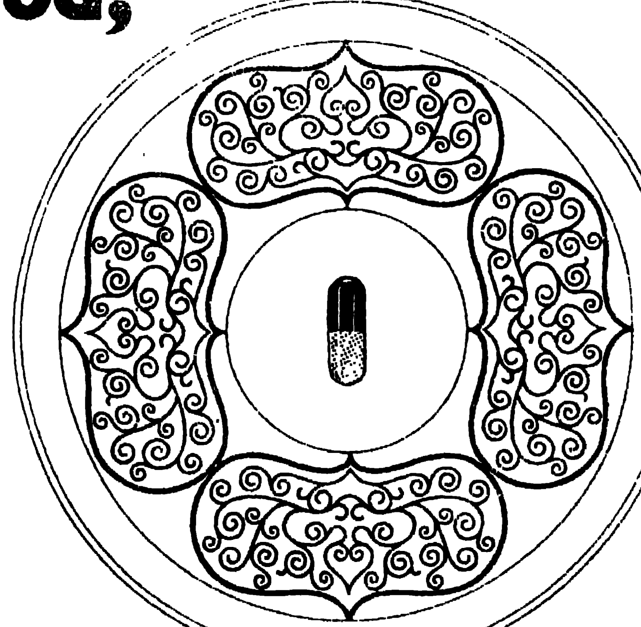

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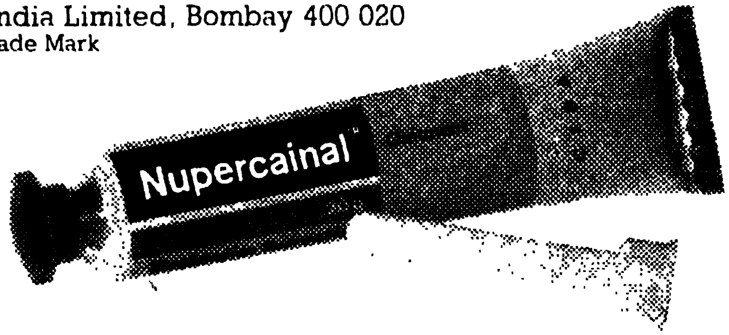

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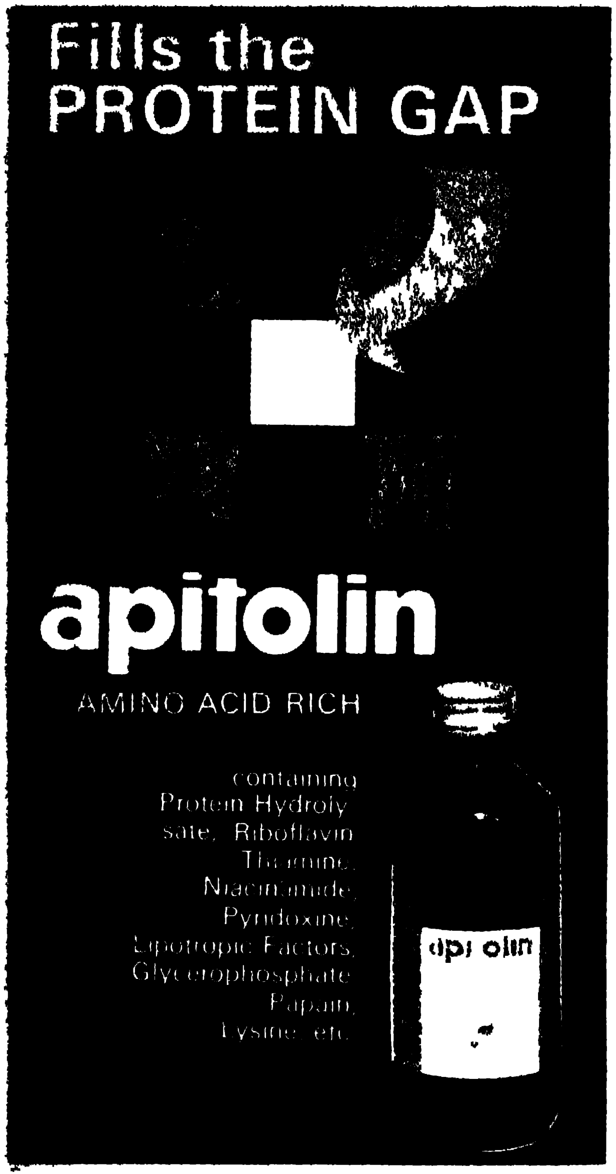

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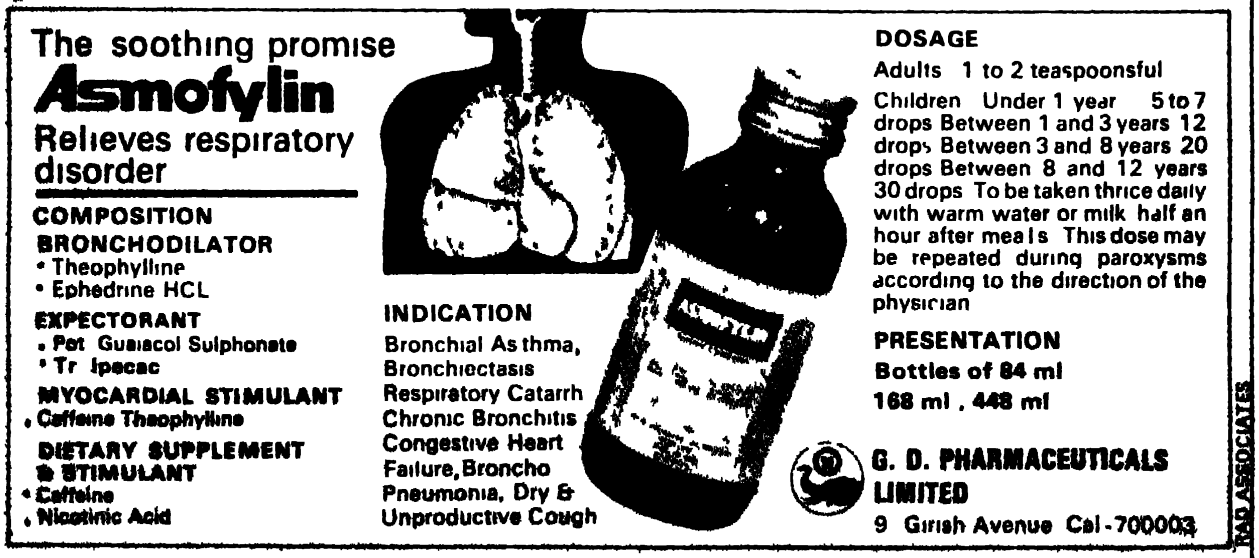

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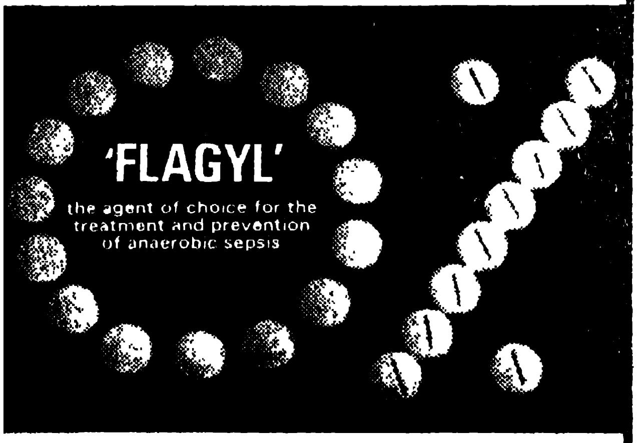
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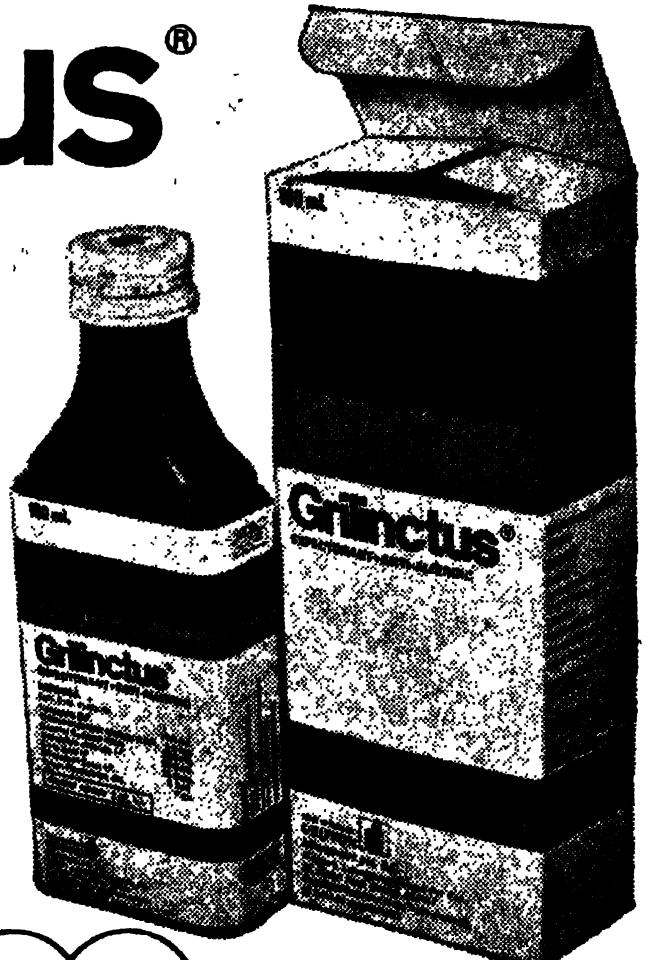

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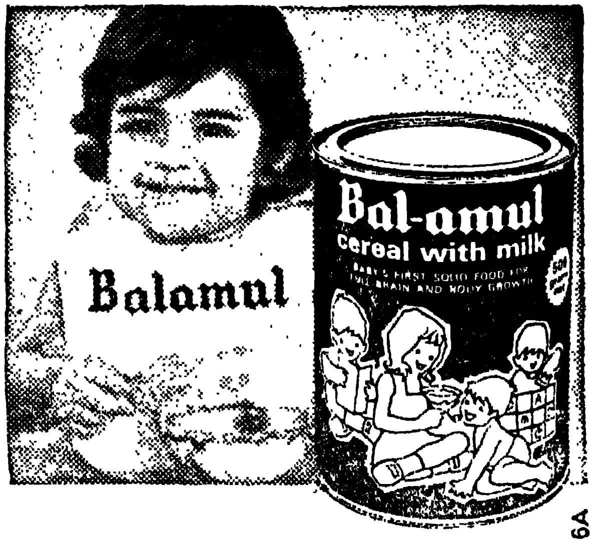

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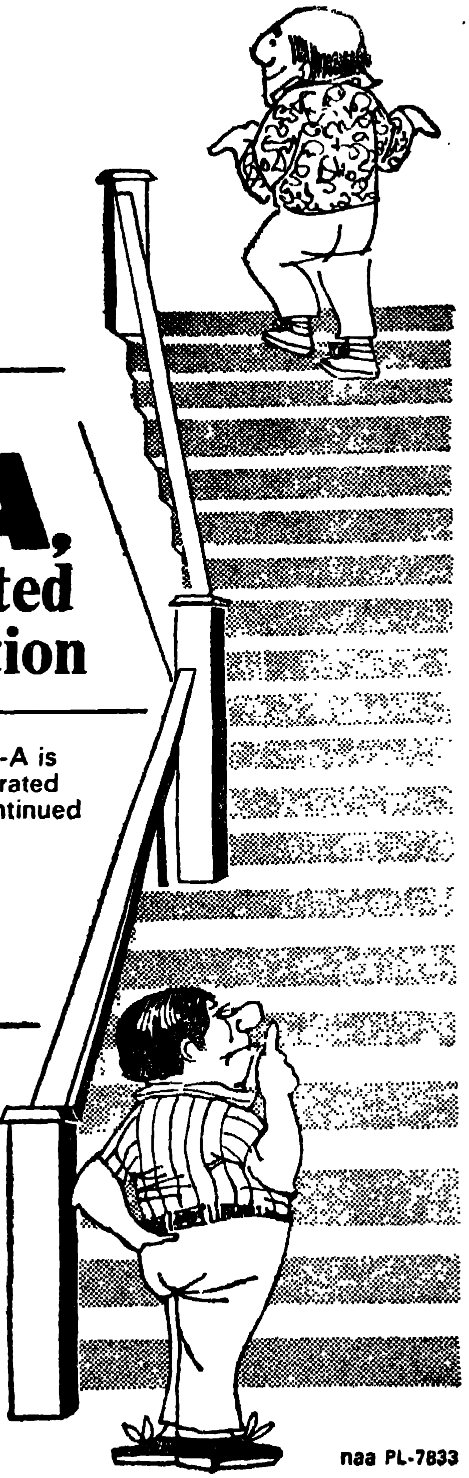

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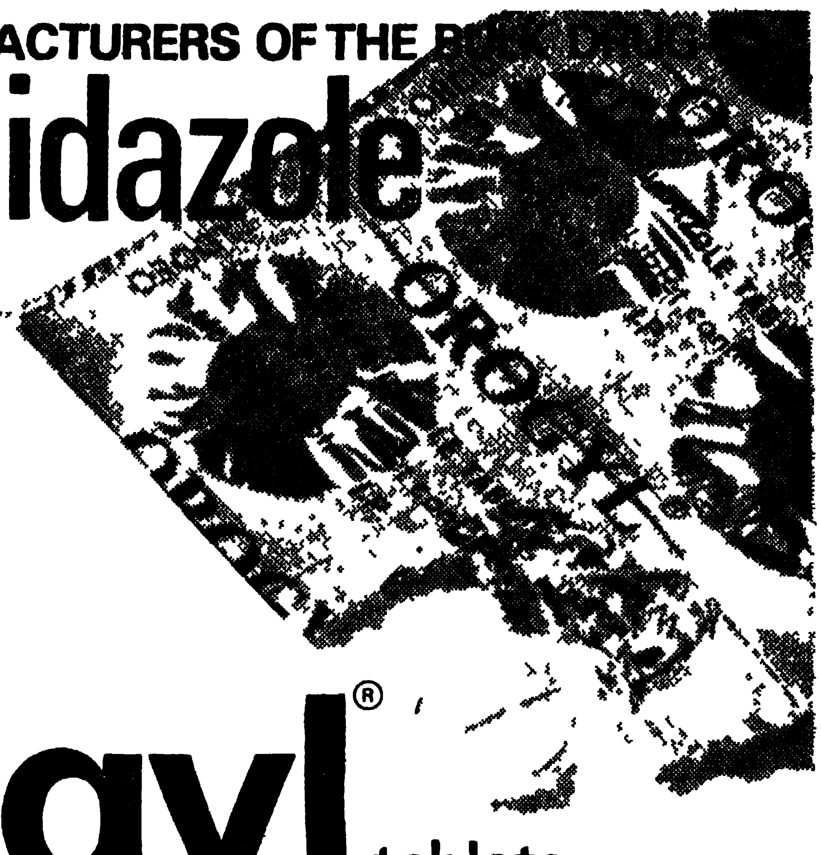

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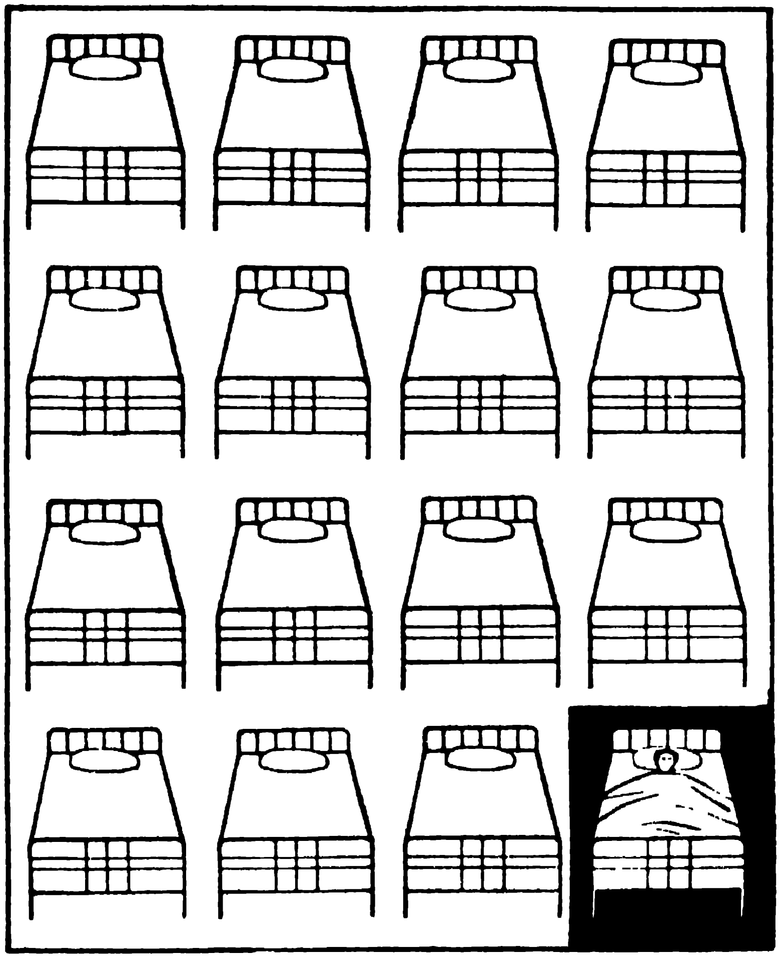

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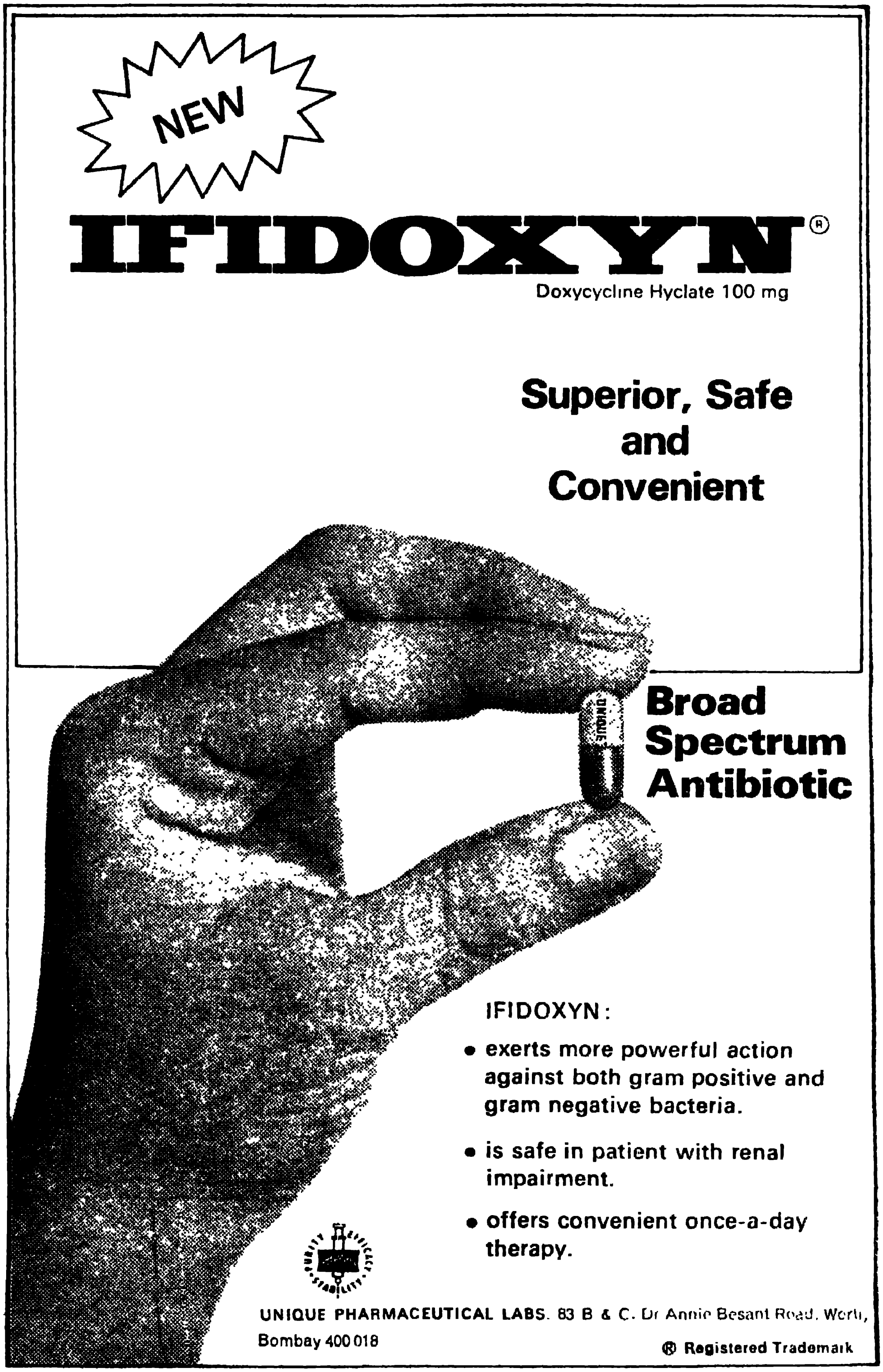

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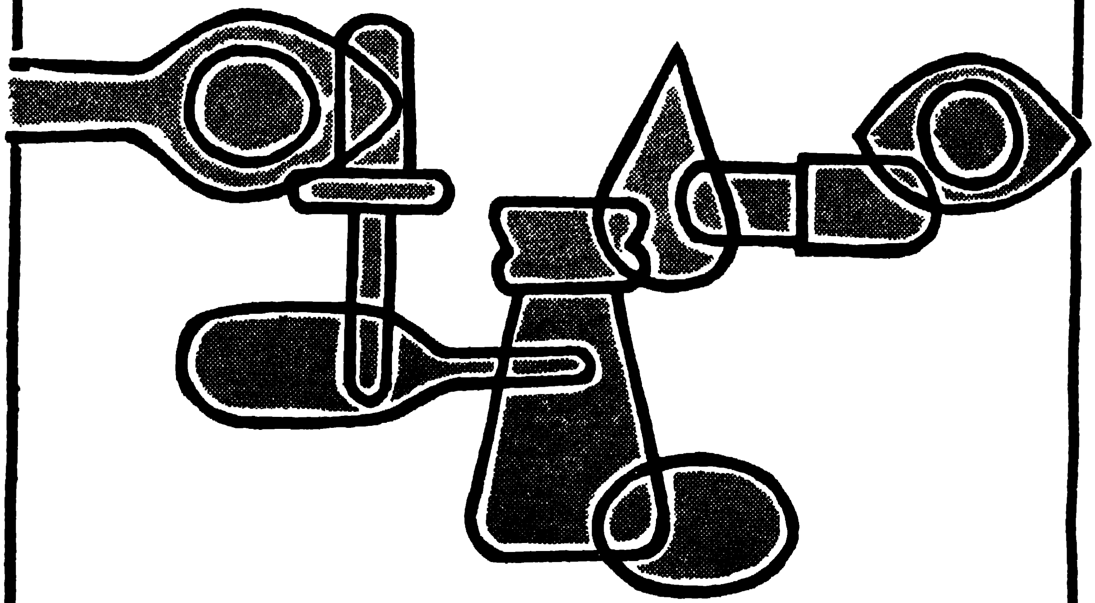

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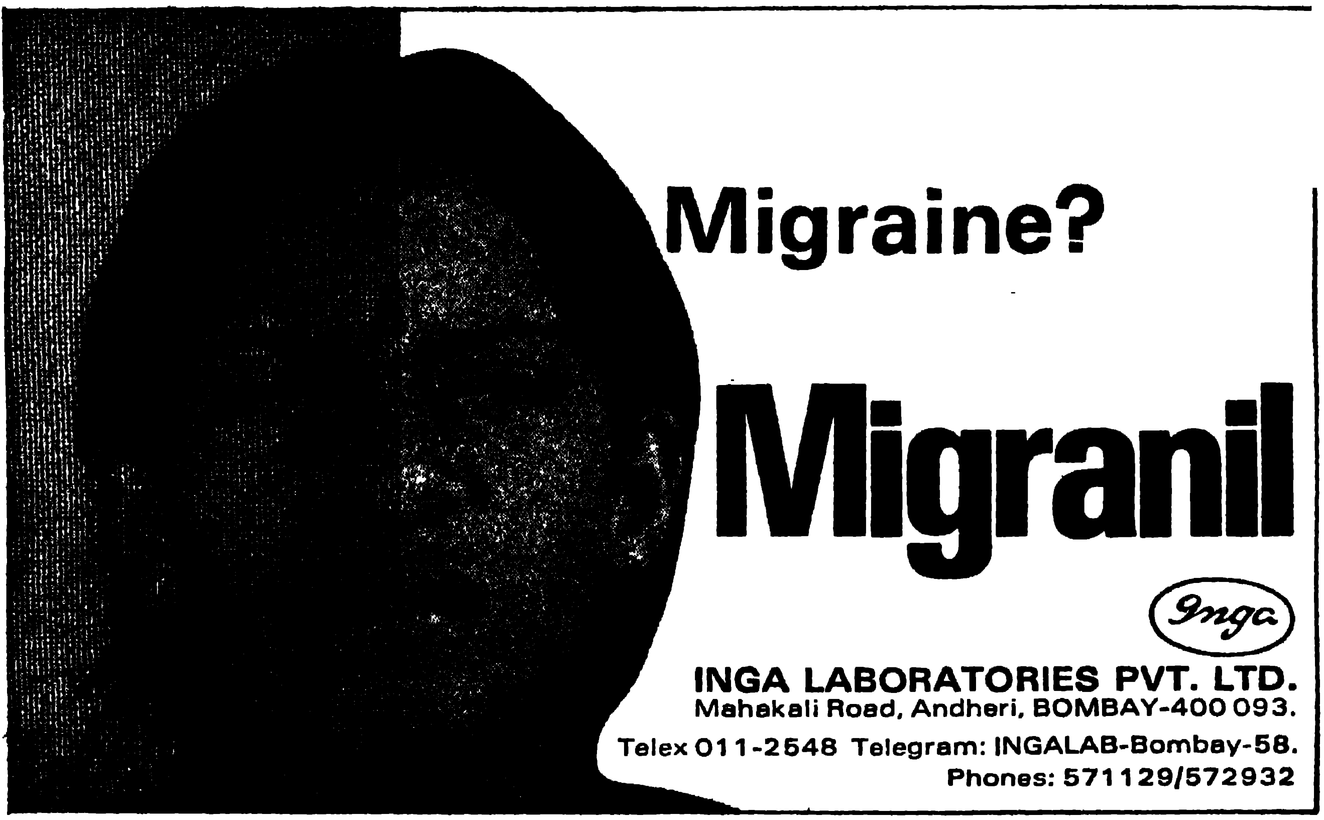

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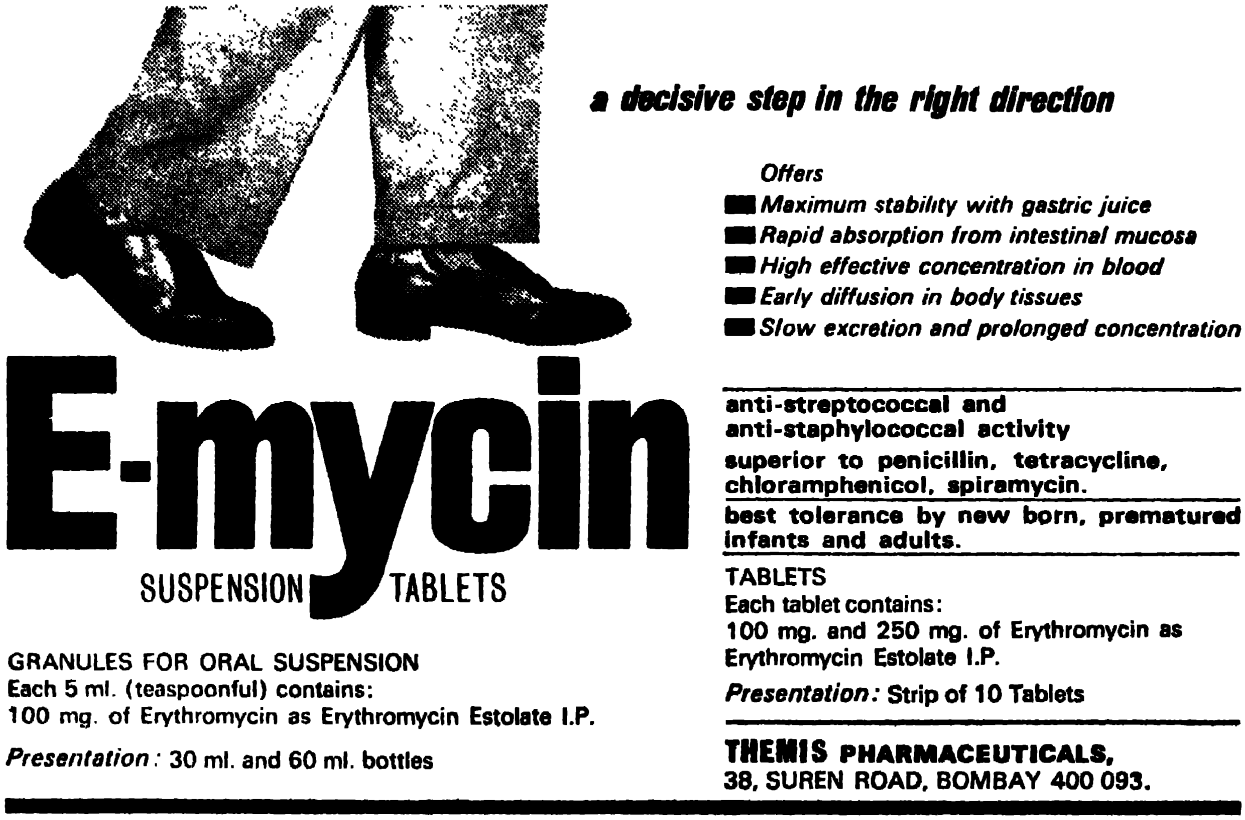

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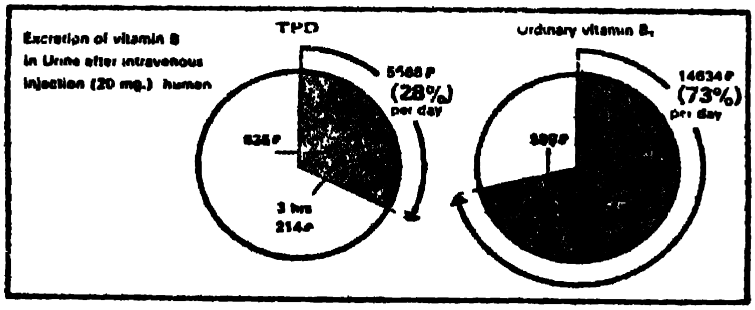

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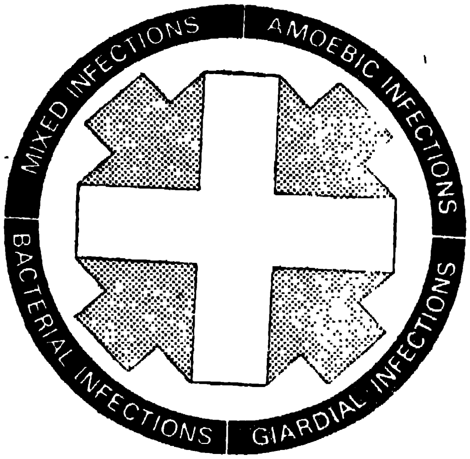

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National Health Planning and Medical Education

(An Exercise in Futility)

A. K. N. SINHA

President, Commonwealth Medical Association, Past President, Indian Medical Association and Chairman, Medical Education and National Plans Standing Committee of the Indian Medical Association

Patna

Whenever one talks of planning one has to take into consideration two things—(a) the available resources and (b) the need of the people for whom the planning is being done. This was the prime consideration when medical educationists and others put their heads together and brought forth two voluminous reports, which we all know as reports submitted by the Bhore Committee in 1946 and later on by the Mudaliar Committee in 1961. In addition to these committees, various other reports on 'Health Care' and 'Medical Education' have appeared (such as, the Jain Committee Report, the Mukherjee Committee Report, etc.) on an all-India basis and many States have also had reports prepared by various committees appointed bv them, e.g., the Das Committee and the Mukherjee Committee reports in Bihar and the Basu Committee report in Bengal. Those who constituted these committees must be feeling very disheartened at the fate of their recommendations which have almost always been flouted by politicians in power. They must also be wondering on seeing the fate of their reports whether the tremendous labour that they put in for submitting the reports was worthwhile.

It may be surprising that even today, i.e., 31 years after Independence we do not have a National Health Policy. Those who were responsible for these reports must have kept in mind that the country needs modern health care and therefore needed medical practitioners practising modern scientific system of medicine. The doctor-population ratio as visualised by the Bhore Committee and subsequently by the Mudaliar Committee must have been calcula on the basis of the existing population of country and the available medical manpower which they must have meant qualified medi practitioners practising modern scientific s tem of medicine. Even politicians, who spoke the past from various platforms and in varic distinguished parliamentary institutions of country, must have meant the same thi However, the Government, since Independe have never spelled out that the country ne doctors practising modern scientific system medicine only. The politicians also have alw spoken and are still speaking in the vein t various other systems of medicine have b neglected in our country and that they have be encouraged to grow. The Indian Medi Association has never opposed this but it always strived hard to know from the Gove ment as to what type of health care they want the people of this country to have.

At the end of the last Five-Year Plan doctor-population ratio (i.e., qualified medi practitioners and population ratio) was 1 4378. However, in addition to 1,37,000 qualif medical practitioners practising modern scie fic system of medicine (out of which nea 18,000 were abroad on account of the so-cal "brain drain" and if this number is dele from the one given above, the doctor-populati ratio will be 1 : 5042) there were about 3,50,0 registered practitioners of the ayurved homoeopathic, unani and suddha systems medicine and 48,000 practitioners practising so-called integrated system of medicine. If a Committee in consultation with the national medical organisation of the qualified medical practitioners in this country to suggest ways and means of bringing back these doctors from abroad and the Committee should be asked to submit its report in six months time. The Government on their part should undertake to abide by the recommendations of this Committee. This will in a way increase the available medical manpower in our country if we are able to bring back even 50 per cent of the Indian doctors who are abroad. The Government may feel that such a step is not desirable since these doctors who are abroad are helping us in getting some foreign exchange but I am sure that very soon they are going to be disillusioned. Most of the countries where our doctors are going these days shall close their doors within the next 5 to 10 years and then what will happen to the surplus doctors that we are producing in our country? Already emigration of Indian doctors to the UK, USA, Canada and Australia has been curtailed. The United Kingdom itself will be having the problem of unemployment amongst its own doctors within next 23 years. Similar is the problem with USA, Canada and Australia. The African countries, where some of our medical graduates go, shall be having their own men and so these doctors who are going there on contract service shall be thrown out. I wonder whether the Government or our own national medical organisation has the time to think about these problems.

As I have stated earlier, at all times during the post Independence years whenever there were talks, discussions or planning about the health care in this country, these proceeded from the assumption that this country needed modern scientific health care and doctors practising modern scientific system of medicine to serve not only its urban but also the rural population. Even the politicians believed in this, and I dare say, they still do so. They may give sermons about other systems of medicine but whenever they get sick they rush to the nearby medical institute or medical college hospital for their own treatment. What they say and practise is totally different and not only the members of the medical profession but also the people of this country have to forgive them for this contradictory behaviours. In our zeal to produce only qualified doctors practising modern scientific system of medicines more medical colleges were opened one after another since Independence. The recommendations of the Medical Council of India have been violated by State Governments and shall I say even by the Union Government. The result of all these has been that majority of our medical colleges are ill-equipped, understaffed and very very haphazard and ill-planned. The number of admission in medical colleges I know and most of us are aware too was arbitrarily increased to even 200 or 250 per year while the college did not have staff, equipment or space even for 100 admissions per year. The systems of reservation of seats on account of various criteria is well-known to every one in this profession. We all know that near 25 to 40 per cent seats in medical colleges are reserved for certain students and most of them hardly fulfil the bare minimum requirement of 40 per cent marks for admission in medical colleges. It is very easy to visualise that at least 30 to 40 per cent admissions in all the medical colleges are sub-standard. On account of all these factors we all have to admit that there has been a sharp decline in the standard of medical education in our country. The members of the medical profession or even the people of our country cannot be blamed for that. It is our faulty health planning and the political approach to medical education and health planning for which only the politicians and some of our own colleagues, who have been advisers to these politicians, are responsible.

It will be clear from what I have stated in all these pages that I have presented some facts only, which are known to practically to all of us but about which we do not open our mouth. The time has now come for all of us to reiterate our faith in modern scientific system of medicine and to believe that people in this country whether they belong to rural or urban areas deserve modern health care and not the health care of the 'bullock cart age'. We have to put these facts before the people of our country. The Indian Medical Association, the national medical organistion of the medical profession in our country, has produced various lengthy reports on rural health care, medical education and National Health Planning. It will be shocking but it is a fact that no Government has ever bothered to look into those recommendations and why should they do it when they have not even bothered to go into the recommendations of various committees appointed by them over which they spent lakhs and lakhs of rupees from the public exchequers. The Indian Medical Association and the people of our country should insist upon the Government to take some of the steps that I am mentioning below if they are at all serious about the National Health Planning, medical education and rural health care.

1. We all say that most of the qualified

medical practitioners are practising in urban areas but has anyone ever bothered to conduct a medical manpower survey ? It is beyond the resources of the Indian Medical Association but our Government and the Planning Commission (which possibly have no idea about this problem) can conduct such a survey. Such a survey can be conducted in not more than six months and it will be most revealing. My contention is that at least 40 per cent of the available medical manpower (practitioners practising modern scientific system of medicine) are already working in the rural areas. The Government of West Bengal conducted such a survey in 1969 and they were also of the same view. Unless we have a proper idea about the available medical manpower and their distribution in our country, no health planning can succeed. It will be revealing also to find out what percentage of the practitioners of other systems of medicine are practising in rural areas.

2. We must also insist that the Central Government as well as the State Governments must spend at least 10 per cent of its budgetary expenditure on health. Unless that is done we cannot have a National Health Planning for the poor people of our country because the amount allocated in various health budgets is spent mostly on establishments and on catering to the needs of the privileged classes in our society and very little is left for health planning and planning as such for improving the standard of medical education in our country.

3. The problem of rural health care, or for that matter any health care, in our country cannot be solved unless the Government and the Indian Medical Association (which has already accepted it) agree that our ultimate aim is Nationalisation of Health Services after which not only the urban but the rural population of our country shall get modern health care.

4. No new medical college should be established in our country and the existing ones must be properly staffed and equipped as recommended by the Medical Council of India. The Medical Council of India should not be subjected to political control in any way and its recommendations must be implemented by State Governments as well as the Central Government.

5. A poor country like ours cannot afford to have an ideal doctor-population ratio as is prevalent in advanced countries but I shall be happy to have a doctor-population ratio of 1 : 4000 in our country on account of the poverty and lack of development in other sectors of our economy.

6. The Government should immediately take steps to have an adequate number of qualified nurses, pharmacists, compounders, dentists and other para-medical workers as recommended by the Bhore and Mudaliar Committees. The delivery of health care requires a team-work and a qualified doctor cannot work alone in isolation. The Indian Medical Association should mobilise public opinion and also enlist the support of nurses, dentists and others so that the Government can take steps to improve the number and the working conditions of dentists, nurses, pharmacists and other para-medical workers.

7. Health assistants or 'Gram Swasthya Rakshaks' can be deployed and should be deployed only for health education and sanitation work in our country. They should forward all sick patients to health subcentres and the Government should organise mobile health care units. These health assistants must not be allowed to treat patients. If the Government does not think that practitioners practising our modern scientific system of medicine will be available to treat these patients they can very well utilise the services of registered ayurvedic, homoeopathic and so many other 'pathic' practitioners for tackling these problems.

8. The Indian Medical Association prepared a National Health Scheme. It should be examined by the Government and we should be willing to make some changes in it if the Government considers it necessary.

I know that some people will not agree with what I have said here. But anyone having a conscience shall have to agree that we cannot plan anything unless we know what we want. Let the Government state, and the Indian Medical Association should insist on it, what the Government wants. If it wants a modern health care, the national medical organisation of our country should accept the challenge and we can prepare a plan whereby the services of qualified medical practitioners can be made available to people even in the remotest areas of our country provided it wants them to have modern health care. I most humbly submit that it will be wasting our time, energy and money in trying to put forward our plan, produce papers, documents and other materials if the Government does not have time to go through them. Unless the Government does that or the people of our country force it to do that I must conclude that to plan about national health care, rural health care and medical education in our country is an exercise in futility ?

The Clouds that Hang on the Horizon of National Health

J. MAJUMDAR

Past President, Indian Medical Association

Calcutta

With the ushering in of the Janata Government at the Centre and the change in the political climate brought about by the restoration of democratic rights, the members of the medical profession all over the country expected that things will also change in the sphere of health administration and health care service in the country. There was a ray of hope in the first policy statement made by the Union Health Minister, Shri Raj Narain in May, 1977, when he frankly admitted the reality of the health scene in the following words: "one of the unfortunate distortion in the Indian scene today is that health has not received the importance it deserves. We have spent crores of rupees on building steel plant, heavy machine factories, atomic reactors and things like that. But I feel strongly that investment in health and in education has been correspondingly very low". Shri Raj Narain declared in course of the statement that he would try to pursuade his "colleagues both at the Centre and in the States to earmark greater financial allocation for health programmes and, on the other, try to see that these programmes are implemented effectively in the interest of the people, particularly those who live in villages and those who belong to the weaker sections of the society".

There were difficulties, no doubt, for the new Government to fulfil this pledge by according a higher priority to health in the interim budget. But to their sorrow and surprise the members of the profession noted that there was no substantial increase in the allocation on health in the last budget and a meagre 2.5 per cent of the total outlay continued to be the share of allocation on health as in the previous Five-Year Plan periods. With this poor allocation of the national revenue on a vital subject like health and family welfare, it is quite obvious to all that the laudable objective of making health care available to the rural and backward areas cannot be attained.

In the same policy statement the Union Health Minister outlined a scheme for strengthening health care services in the rural areas. Giving his own reason as to why in spite of a vast network comprising 5300 PHCs and more than 37,000 subcentres, all in the villages, the health of the rural population continued to be as before, Shri Raj Narain concluded that it was due to the inadequacy of people's participation in the health care programme. To ensure this participation as also to reach minimum health care to the rural people he proposed the Community Health Workers Scheme under which the workers selected by the rural community having read up to at least VI (sixth) standard were to be given three months' training in measures for maintaining good health and hygiene, treatment of common infectious diseases, maternity and child care, treatment of common ailments and first-aid, etc. At the end of their training these village workers were to be awarded a certificate and receive supply of a kit consisting of common remedies both from the modern and traditional systems of medicine. According to Shri Raj Narain these community health workers and trained *dais* working under the guidance of 2 multipurpose health workers would serve a population of 5,000, the target to be achieved by 1984-85. These proposals which were concretely placed at the Conference of State Health Ministers and Health Secretaries in New Delhi in April 1977 in the draft National Plan for Health Care Services in the Rural Areas could not be endorsed by the IMA because of fundamental differences in the approach to the basic problems underlying the rural health care.

On behalf of the IMA Dr. D. S. Mehra, Hony. General Secretary, addressed a memorandum to the Union Health Minister on May 27, 1977 in which he sought to draw the attention of the Union Health Minister to the vital matters which had been agitating the minds of members of the medical profession for a long time. It was pointed out first of all that a large number of doctors had suffered demotions, transfers, or dismissal from service on personal or political vendetta. In many cases victimisation was just due to non-fulfilment of family planning targets, difference of views with the administrators, refusal to join the National Forum of Doctors, etc. The memorandum stressed the need for improving the service conditions of doctors of all categories, appointment of a National Wage Board for doctors for bringing about a uniformity in the pay-scales for doctors all over the country. The memorandum pointed out a dangerous trend in a number of States towards giving the unqualified practitioners legal sanction to practise modern scientific medicine and enlisting even practitioners of indigenous systems in the same Register as that maintained for the modern scientific system. The memoradum questioned the wisdom of imposing fresh restrictions on nursing homes and clinical establishments through the enactment of ordinances or new laws when the existing civic laws already had their jurisdiction over these institutions. Regarding the Community Health Workers Scheme it was made absolutely clear in the memorandum that IMA should have no objection if these workers were trained only to do such duties as health education, look after sanitation and first-aid, or help in preventive work thereby assisting medical officers. IMA opposed the idea of training them for undertaking treatment of common ailments both in modern scientific and the traditional system. IMA's fundamental difference with Government's stand on this issue, it was pointed in the memorandum, was the supposition by the Government that the village people did not require the same effective and efficient medical care as available to the urban population. Another important point of difference was that while the Government took it for granted that doctors were not going to the villages an overall survey would show that almost all the PHCs were manned and a large number of qualified practitioners were practising in the villages under difficult circumstances because of the poverty of the villagers themselves. Government could certainly look into the reasons for the reluctance of doctors in service to serve in the villages and take necessary steps to remove the same, but the remedy was not to impose quacks on the poor villagers.

The other important feature of the national health policy of the previous Government, in respect of which IMA had reasons to feel that its considered views and its outstretched hands of co-operation were ignored by the Government, was Family Planning. The IMA appreciated the Janata Government's declaration that population control without compulson will continue to be a major programme of this Government. But it was disappointed to note that the Government did not attach due importance to the involvement of private medical practitioners which the IMA has been urging the Government to do all these years, in the interest of success of the Family Welfare Programme itself. The reason for IMA's disappointment is all the more because while Branches of IMA in different States started working out the Family Planning Programme on the basis of financial arrangement entered during the latter part of 1976 with the Government of India, Ministry of Health and Family Planning, soon these activities were stuck up, as due to the bureaucratic red-tape, it failed to secure release of the promised grants in time. IMA's sad experience was that no amount of correspondence or personal interviews by the IMA leaders helped them to obtain the desired relief.

Another vital issue on which IMA expected this Government to act promptly is the inclusion of Health in its entirety and not merely the "population control and family planning" aspect in the Concurrent List.

IMA as the national organisation of qualified medical men of the country with a glorious tradition of partriotism and service to the people has long been demanding that instead of a piece-meal approach the Government should formulate a comprehensive health care policy laying down clearly how it proposes to deliver scientific health care and medical aid to all sections of the people and to all corners of the country. The prerequisite for formulating such a policy is to have a proper survey of the qualified medical manpower in the country, the actual health needs of the uncovered or inadequately covered areas and whether any discrimination should be permitted in the pattern of health care service extended to the urban and the rural population and also whether the role of the community or multipurpose health workers should be extended beyond the catering of preventive care and spread of health education among the rural people. In short, the Government should spell out its entire health policy in clear terms keeping in view the financial resources, developmental priorities and potential strength of the qualified medical and para-medical manpower in the country and availability of other inputs including drugs and equipment. Already much valuable time has been wasted on running after unworkable schemes and quite a sizeable portion of the national revenue has been consumed on projects from which the nation is unlikely to benefit because these were not sanctioned by the scrutiny of competent experts, who knew the real conditions of the people and their lives. It is high time that the Union Health Ministry takes the entire medical profession into confidence by spelling out what it wants to do for the promotion of health of the people during the next several years and to whom it wants to entrust the health care of the people.

Some Points for Consideration in Framing a National Health Policy

VIJAY KUMAR AND P. N. CHHUTTANI

Postgraduate Institute of Medical Education and Research

Chandigarh

Since the publications of the Bhore Committee Report (1946) there have been several major programmes to provide health services to the rural population and urban slum areas. Periodic reassessment was made with important contributions coming from Mudaliar Committee (1962), Kartar Singh Committee (1972) and Srivastava Committee (1975). Important additions to the existing programmes included establishment of Primary Health Centre and Subcentre since 1958, involvement of auxiliaries in primary health care, the concept of multipurpose health workers and recently the introduction of village-based part-time health workers to strengthen the health services at the grassroot levels.

The basic unit of health infrastructure in rural areas in India consists of Primary Health Centre and the Subcentre to provide integrated primary health care. Presently there are more than 5000 PHCs and 38,000 subcentres in India. In general there are 8-10 subcentres for each PHC providing health care to 10,000 population. Each PHC is manned by 40-60 health professionals and para-professionals so that one multipurpose health worker is available for each 10,000 people. Recently, the Government has introduced the part-time community health workers and *dais* to serve 1,000 people each in their village with a view to strengthen the health services there. By the end of 1978 it is expected that more than 70,000 CHWs will be trained. In addition there are estimated to be 400,000 registered medical practitioners in India providing health services (mainly of curative nature) on private basis. In general the State health expense is no more than Rs. 10/- per person per year and bulk of this is on staff and maintenance with less than Re. 1/- per year for drugs. (Some devolping countries of the world are spending similar amounts for health care but with much better results than attained by India). The efforts have been sporadic and though target oriented they have met with very little success. For instance, there have been sporadic attempts at eradicating malaria, control of trachoma, conversion of health workers from unipurpose to multipurpose health workers, besides the launching of the family planning programme, the tuberculosis control programme and recently the training of community health workers. This has meant huge expense and little or no impact. There has never been a continued commitment to any programme nor any laying down of priorities, which have to be done when resources are limited. Supplies, supportive supervision and back up by the health staff are grossly inadequate. Thus the limiting factors in existing health care services are not lack of manpower or inadequacy of resources. The problems are related to lack of adequate inputs which are essential for the functioning of health staff in the field situation.

Structurally the health care delivery system in India is similar to the Chinese system. There are several other programmes in India as well as abroad where success in the primary care has been achieved through deployment of auxiliaries. The factors contributing to this success include :

1. Specification of priority health problems for action.
2. Adequate supplies far more than what is available from the State.
3. Dedicated support and supervision.

In China and many other communist countries, success is related to single party system leading to specifically directed political will to implement health programmes through a structured approach which is passed on effectively through mass media and other channels up to the family level for implementation. For the country as a whole the two major deficiencies seem to be : (1) lack of political will in implementing clearly spelt-out health policy and (2) very poor implementation at the grass-root level as the Panchayat administration is very weak and insecure.

The following suggestions may be considered to meet these deficiencies :

1. Retaining the structural components of the recommendation of Srivastava Committee Re-

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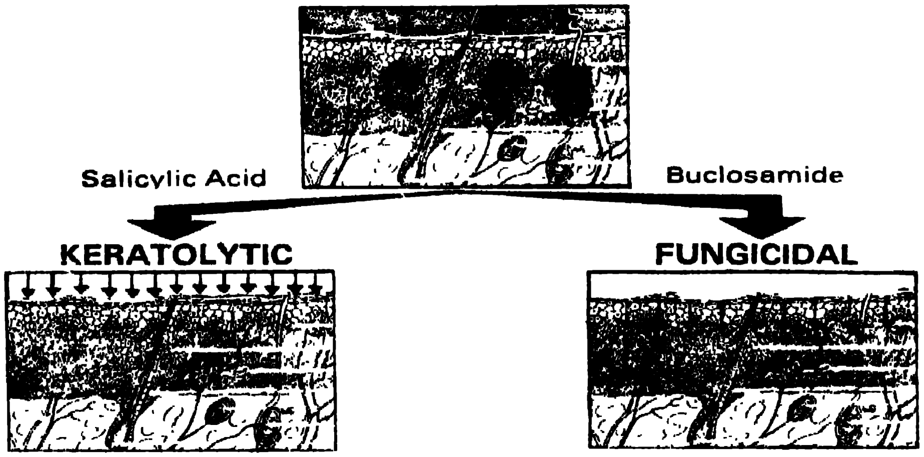

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Buclosamide	10%	10%	10%
Salicylic Acid I.P.	2%	1 %	2%
Hydrocortisone Acetate I.P. corresponding to Hydrocortisone	—	—	0.5%

PRESENTATION

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Bottle of 20 ml. with polythene applicator	20 g. Tube	5 g. Tube

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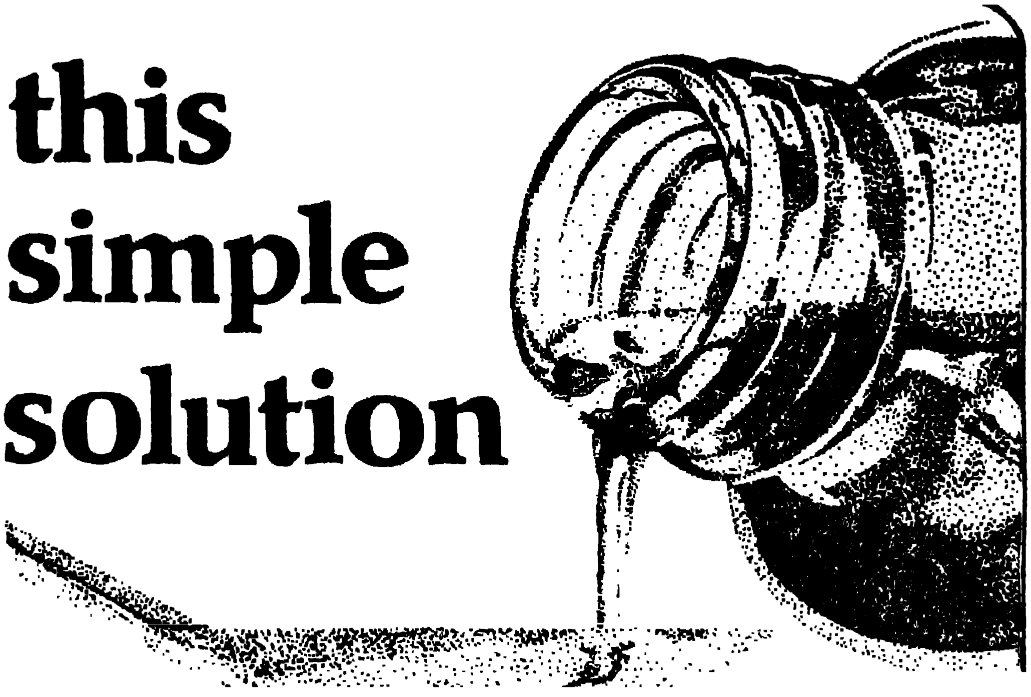

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port for implementation and stopping attempts at any further structuring. The responsibility to be entrusted to health committees or commissions, if any, should be to review what has been implemented rather than change the basic structure.

2. Total backing to come from the Government—Central as well as State—in the implementation of the National Health Policy and attempt to be made to obtain a concensus on the policy from all quarters.

3. Delegation of greater power to the village level administration/committees so as to make health workers at the grass-root level accountable to them in an attempt to increase meaningful involvement of the village community at that level.

4. Deciding about priorities which should relate to important areas such as control of communicable diseases, checking of population growth and reduction of infant and maternal mortality.

5. Deployment of appropriate resources to deal with the priority problems effectively.

6. Assigning of specific areas of responsibility to medical colleges with clear specification of objectives, viz., to devise simple, cheap and practicable methods for dealing with the common life-threatening or disabling health problems ; to devise effective training and evaluation programmes for non-professionals, para professionals and professionals ; to develop adequate field practice areas to make the above training feasible ; to provide functional back-up services to strengthen services at all levels ; to undertake research with emphasis on operational aspects.

7. Phased implementation of the programme of action suggested by Srivastava Committee combined with ongoing and comprehensive evaluation of the programme so that ineffective components may be phased out and strength provided for viable programmes.

8. Evolving a programme of continuing education (to include health education and treatment of illnesses) for all categories of health workers and evolving health education materials for application by the families through effective use of mass media.

9. Recognition of the potential of registered practitioners of medicine and general practitioners and their possible contribution in solving the health problems of the country ; involving GPs and RMPs in an ongoing continuing medical education programme, the attendance at which sessions should help them in earning credits to keep up the licence to practise medicine. The aims of continuing education for GPs and RMPs should be to involve them in the priority national health programme and in improving their clinical skills to ensure better management of diseases.

10. Evolving clear-cut policy to provide back-up referral services which should attempt to tie up the health services in the villages to that available in teaching institutions and hospitals.

11. Initiating postgraduate degree and diploma courses in important areas like (a) family practice, (b) general practice, (c) health administration, (d) nutrition and (e) maternal and child health so as to increase the expertise in these areas in making teachers and researchers, available for strengthening of undergraduate and internship training programmes at the medical college level.

12. The programmes should not make people and population groups dependent. They should ideally be meant to strengthen the 'self help' concept based on the felt needs of the people. The concept of aid must be understood in its real perspective. Aid should help improve knowledge, tide over a situation of crisis or impart strength to a programme so as to make it viable and self-sustaining. Aid of course will be necessary to tide over crisis in the deprived sections of the population to prevent catastrophes. This brings in the important concept of community responsibility and participation which implies that each individual is basically responsible for the upkeep of optimum health. The State should just help him to reach that goal.

13. Clear definition of population control policy, social change and education to make family planning a people's movement. The checking of population growth must be spelt out as a national priority with each citizen of the country responsible for its implementation. The requisite arrangements for its implementation should be made.

14. Development of allied disciplines which would attempt to tackle the health problems on a broader perspective, that is to say, including the aspects of water cleanliness, environmental sanitation, increase of food production, housing, education, etc.

A National Health Policy

G. P. DUTTA

Associate Editor, Journal of the Indian Medical Association

Calcutta

In India food, education, employment and other essential necessities of life have not yet been assured by the Government. In such a socio-economic set-up it will be very difficult to implement a comprehensive health plan unless the total socio-economic structure of the country is changed.

However, IMA is presenting the principles to formulate a National Health Policy and a comprehensive health plan which is thought to be rational and practical and is expected to serve the people best under the existing circumstances.

PRINCIPLES :

1. To declare that health care of every individual is a fundamental right to be incorporated in the Constitution.

2. To recognise the link between health service and increased production. So long the health budget has been regarded as consumption rather than investment—an end rather than means of development. This has to be reversed. Health has to be considered as the means to maximising production and as an integral part of total national development.

3. To integrate health plan and programme with national planning for economic development and to make 'work' the principal aim of health..to ensure industrial and agricultural production. The guideline is as follows : to proceed from production, to co-ordinate closely with production and to serve production.

4. To involve every stratum of the people in the movement for health consciousness and in the delivery of health care not only from a humanitarian outlook but from the viewpoint of a practical need for survival, i.e., to impress upon every stratum that to protect health of the labourers and raise the attendance role and labour efficiency of the labourers is to render the most effective aid to agricultural and industrial production.

5. To percolate this idea at all levels and to develop a health movement among the people organising their active participation in determining the type and quality of positive health care as well as the immediate relief of their felt needs. To organise and work at grass-root level to find out the condition of water supply, housing condition, nutritional status of the people, and to study ecology of the diseases and their respective treatment.

6. To entrust and involve the medical profession along with the people in evaluating the available health care and suggesting practical measures for its improvement.

Medical profession as a whole should accept its obligation towards the society, devote its scientific expertise to device medical care to suit the prevailing conditions in rural and urban areas. Medical education should also be recast and reorganised to suit and serve the need of our countrymen.

7. There is one existing structure of the health care in our country under the Department of Health.

There are other governmental and quasi-governmental organisations, viz., Railway Medical Service, ESIC, Port Trust Medical Service and Dock Labour Board Service. There are also hospitals and medical services run by big industrial concerns, corporations and municipalities in big cities and towns, by managements of plantations and coal mines and also by various religious and benevolent social organisations. At present there is no co-ordination and co-operation between these organisations. It is essential that these isolated independent organisations are co-ordinated and developed according to the need of the society and not in consideration of the power, resourcefulness, demand and various other pulls of the organisers.

8. The present health care service is intended mainly to cater to the felt needs and curative aspects of health. This service is institution based, i.e., served mainly by static units. It is worth noting that about 50 per cent of the health budget goes for construction and maintenance of buildings alone.

These static units can not serve the people because of a) poor communication facilities ; b) non availability of diagnostic and treatment facilities in most of the rural and even the urban hospitals ; c) paucity of drug supply.

9. The basic objectives of the health policy should be to :

A) Apprise the people regarding the real condition of health care systems as it exists today and confiding in them about the constraints and the capability of the Government, i.e., how far they can serve the community;

B) To involve the people in the health care movement, i.e., health education and proper utilisation of the existing resources;

C) Integrating health care with industrial and agricultural development. This will include integration with the departments of Education, Irrigation, Agriculture, PWD and other relevant departments. This is essential for positive health care;

D) For the curative part of the health care the basic objects should be:

i) To provide medical help within easy reach of the people; ii) to promote domiciliary treatment; iii) to screen, diagnose and treat as many diseases as possible at the periphery and select suitable cases for institutional treatment reducing thereby the unnecessary load on hospital.

The plan has to be phased out keeping the realities of the rural conditions in view.

In the Community Development Block one peripheral hospital having 100 beds and the departments such as the medical including treatment of infectious diseases, surgical including traumatic surgery, gynaecology and obstetrics including family planning and eye, ENT and paediatrics has to be established with 4 mobile medical units having to visit each of 8 zones bi-weekly to start with. It may be on alternate days so that one of the units does not have to go out two days a week excluding Sundays.

These mobile units will be helped and subsequently converted into the connecting link with the family doctors. These family doctors must be provided with a small dispensary and requisite medicines by the Government and given all help and guidance by the peripheral hospitals/mobile units. The family physicians should receive an allowance per patient and assured of a minimum income of at least Rs. 500/- per month.

It has been estimated that only 33 per cent of the population (according to West Bengal Survey, 1969-70) specially in rural areas have access to modern medical care. Even when all the health centres are established and manned by qualified doctors there would still be no provision for domiciliary service equivalent to family physician's care.

Now people have to attend the nearest health centre or hospital for all illnesses, minor or major, involving travel of long distances with poor transport facilities in the villages. It is generally agreed that a large number of common ailments can be effectively taken care of without hospital facilities. Even some acute illness of short duration or of self-limiting nature can be treated at home with domiciliary medical care. Ideally some sort of outdoor-*cum*-domiciliary service should be provided through a clinic or dispensary with qualified medical officers. This may be possible in urban areas where a large number of qualified doctors would be available. In the rural areas specifically trained assistants or health workers will have to be entrusted with the task of treating minor ailments with the help of a few comparatively safe remedies in the form of readymade formulation either as primary medical care, or continued care after reference to the medical officers of health centre according to their directions.

This can be achieved by measures as under:

i) Incorporating the peripheral hospitals with teaching units and the university, ii) reorganising the training and teaching programme of peripheral hospitals and iii) involving the available local practitioners on part-time basis in outpatient department and special programmes.

For rural areas community health workers (health assistants) should be locally recruited from among the villagers with a minimum standard of general education and they should be locally trained at the nearest health centre by the medical officer, under whom they shall have to work. One community health worker is to be selected for each village. It will be ideal if this community health worker (health assistant) is selected by the inhabitants of the village for his good behaviour, rapport with the people, his energetic propensity and aptitude for nursing and health care. With proper campaign and education, possibility of voluntary health workers coming up for sharing the responsibility cannot be ruled out. In the Indian social climate this is not utopian.

These community health workers (health assistants) are trained to diagnose simple illnesses like common cold, short fever, mild diarrhoeas and dysentery, constipation, headache or other aches and pains, common skin diseases like scabies, impetigo and ring-worm infections and render first-aid for minor injuries and burns.

The major work of these community health workers being confined to imparting health education and preventive medicine, they will propagate personal and environmental hygiene. They will carry out immunisation programme and lead campaigns on birth control and on eradication of pests, mosquitoes and flies, etc.

Implementing this domiciliary health service plan will not only reduce the cost of building, big or moderate, for a large number of subsidiary health centres immediately but will also bring medical aid to the doorsteps of a large number of ailing people at a comparatively cheaper cost. It will ultimately be economical. Moreover by proper applications of preventive measures through this system, morbidity rates would also be reduced.

Persons engaged in treatment by the indigenous methods should be encouraged to develop their own method of treatment on scientific basis and the modern investigation facilities should be offered to them in the PHC to establish better understanding.

There is a large number of unqualified persons who are practising modern medicine. They should be given a short course training in the PHC and they are not to be detached from their home or sent to a sophisticated place. They should be utilised as 'Feldsers' or rural health workers and may work as helpers to the doctors in MMU/PHC.

Financial involvement of the health delivery units at the rural level may be considered to be effected through an insurance system, contribution being received from Central Government and State Government and 50 per cent from rural population. The land owner as well as landless agricultural worker with a minimal wage of Rs. 8.00 per day may be covered by this insurance through rural co-operatives under Panchayets. The premium may be realised in cash/kind or through contributing labour by the incumbents. This has the advantage that the rural people will feel that they have legal right to receive the medical care from the health care delivery units.

In this plan for immediate relief of the people primary emphasis has been given on

1. Mobile Medical Units ; 2. Mobile Emergency Medical Units ; 3. Minimising the construction cost of the buildings and diverting this money to increase supply of drugs ; 4. Integration and co-ordination of all the different limbs of health care, i.e., (a) Family planning, (b) Public health programme e.g., immunisation, malaria eradication, control of infectious diseases, health education, etc., (c) Health survey, (d) Study of ecology, (e) School health, etc., with curative medicine ; 5. Sponsoring health consciousness and health movement ; 6. Utilising the available quasi-medical workers in the main programme ; 7. Introducing a new type of medical education (community based) by selecting medical students and workers from the local youths and training them through phases for para-medical staff basic doctors, medical specialists and medical scientists.

The emphasis has been given on making one equipped hospital in each Block. These PHCs or the peripheral hospitals should be capable of giving proper medical relief (excluding super-specialities) and radiating preventive medicine, health education and health movement. These will also be the recruiting centres for medical personnel and the training centre of vaccinators, health educators, health assistants, midwives and junior trained nurses.

The PHCs will be closely linked with (district) Regional Hospitals—regional because the existing districts have different areas, population, density of population, economic growth, literacy and communication facility.

The PHCs will be constructed on the basis of square mile area covered by it and not on the basis of population. Regional Hospitals will be similarly built on the basis of the square miles they will cover. The number of beds will vary according to the population of that particular area.

These Regional Hospitals will serve two purposes :

(1) Serve the need for a Referral Centre for the PHCs.

(2) Catering to the need of the local population like a peripheral unit.

The Regional Hospitals will be linked up with the Medical College situated in the respective region.

These hospitals will have a bed-strength of between 300-500 according to the population. At least 200 beds will be kept reserved for referred cases from PHCs. These will have all the specialities of curative medicines and diagnostic facilities for most of the diseases.

PREVENTIVE MEDICINE:

For a programme of preventive medicine to be effective there should be 3 specialists—(a) for supervising and co-ordinating the work of PHC. (b) for responsibility of preventive medicine for the locality and adjacent area, (c) training of para-medical workers.

The existing sub-divisional hospital should either be raised to Regional Hospital or be regarded as one of the PHCs. These Regional Hospitals should be attached to the nearest medical college. This Medical College and Hospital should be equipped with the following:

1) All the super-specialities like (a) neuromedicine, (b) plastic surgery, (c) cardiology, (d) neurosurgery, (e) cardiothoracic surgery.

2) (a) All the divisions of pathology, (b) a well-equipped department of radiology and radiotherapy and (c) biochemistry.

3) Departments for basic sciences namely (a) anatomy, (b) physiology and (c) pharmacology.

The functions of the Department of Preventive Medicine will be to conduct :

a) Planning and survey ; b) study of ecology ; c) training and teaching of medical personnel and higher training and re-orientation courses both for medical and para-medical personnel.

4) Research on a) clinical and (b) basic subjects.

MANPOWER POLICY

ABSORPTION OF UNQUALIFIED PERSONS PRACTISING MODERN MEDICINE:

For absorbing the unqualified persons who are practising modern scientific medicine the following immediate measures may be taken :

1. Those unqualified persons, who are already practising modern medicines for at least 5 years, whose age is below 40 and who have the minimum qualification of having passed the matriculation/school final/higher secondary examinations should be recruited to work in the PHC and they may be given a short course of training of 1 year (in service training) in modern medicine in the Regional Hospitals. Then they may be employed in the PHC as GDMA (General Duty Medical Assistants) with a special grade different from that of ordinary para-medical staff.

2. Those who are below 40 years of age, practising modern medicines for at least 5 years and have completed class VIII standard of education will undergo a short course of training (in-service training) to qualify as : a) family planning workers ; b) pharmacists ; c) health assistants, i.e., vaccinators, etc. ; d) nurses (there is no reason why posts of male nurses will be abolished) ; e) operation theatre assistants ; f) health educators. After training in the PHCs for 3 months and in Regional Hospitals for 3 months they may be absorbed in the MMU, MEMU and PHCs. The selection will be on the basis of their efficiency, capability and aptitude.

3. The GDMAs thus working in the PHCs for 1 year will be further trained (5 to 10 per cent may be selected for this purpose) in the Regional Hospital (in-service training) for 3 years. They will be selected on the basis of their experiences and merit.

Here they will work as GDMAs along with facilities for attending theoretical lectures and lectures in basic science. After completion of this course they will be given a certificate and be allowed to work in the PHCs, MMU or allowed to practise as family physicians.

4. Up to 5 per cent of the para-medical personnel in Group II proving to be excellent may be selected after 2 years of work for training in the Regional Hospital for 3 years (in-service training) and on passing out they will be regarded as GDMA (special grade like Group I).

5. Meanwhile the candidates from the youths of the locality passing H. S. Examination will be recruited from the PHCs as medical students who would receive community based medical education to be phased out as follows : PHC—6 months, Regional Hospital—1 year, Medical College—3 years, then final examination for degree. At this stage they will be assessed and credits will be given. This will be followed by internship in medical college or teaching hospital for 6 months to 1 year, houseofficership in Regional Hospital and posting at PHC duration of which will vary according to the assessment.

To implement this the basic requirements are :

1) Upgrading of the existing district hospitals.
2) Change in the outlook and orientation of medical education and curriculum.

Similarly the para-medical staff will also be recruited from the local youths in the PHC and trained in the various disciplines, in the Regional Hospital and PHC.

UTILISATION OF PRESENT RESOURCES:

a) *Regular service personnel*—Re-distribution of the GDMOs and specialists and decentralisation of the top heavy organisation in the cities and capitals will be necessary.

b) *Part-time appointment of non-service doctors*—On sessional basis such appointments may be given to specialists and local GPs. They may be utilised in MMU, OPD of PHC and in part-time duties in the indoor.

c) Vacant posts may be filled up by temporary recruitments on locum tenents.

d) Employment of physically fit superannuated persons on temporary basis may me made.

e) For immediate manning of the PHCs with specialists the criteria of specialists may have to be temporarily changed as follows : i) Diploma-holders ; ii) those trained in the particular branch for more than three years will be recognised as specialists after a short orientation course of 6 months. From among these doctors, who are below the age of 40, candidates may be selected for postgraduate training after 1-3 years of service.

This entire scheme can only be materialised through a phased out programme of administrative reforms, that is to say, decentralisation of the administrative control from the capital to regional centres and following it up to primary health unit level. The details of this are outlined as follows :

1) Formation of Regional Board—administrative and executive (under the Central Health Directorate).

2) Formation of Regional Health Council—

supervisory and advisory, The tasks of the Council will be i) to promote self help movement ; ii) organise health education and health movements (under the Health Minister).

Under these two regional bodies there will be - i) Primary Health Centre Board - administrative and executive. ii) Primary Health Council-advisory. (Details of these organisations may be drawn up).

Along with the construction of the PHCs and Regional Hospitals the main task of improving people's health depends upon the emphasis on preventive aspect of medicine. This is, as pointed out earlier, intimately related with the improvement of general living conditions of the people. Even before the radical change in the structure of rural economy in the form of land reform and introduction of small scale and cottage industries. Government has to devise ways for supply of drinking water, disposal of excreta and sanitation in the rural sector. The planning and execution of such a programme can be achieved in co ordination with the following departments :

1) Department of Health- Public Health section. 2) PWD Engineering, Construction and Maintenance. 3) Department of Agriculture and Irrigation. 4) Geological Survey of India—Hydrological Division. River and Flood Control. 5) Department of Social Welfare and Community Development. 6) Department of Relief and Rehabilitation. 7) State Electricity Board. 8) Representatives from people's organisations (peasants, school teachers, etc., from all parties). 9) Department of Education for ; a) health movement ; b) propaganda ; c) hygiene in the school. 10) Representatives from IMA.

The representatives from these departments will form the regional boards and councils and will study :

A. *Ecology and epidemiology* Prevalence of diseases in the particular region—studies on ecology and epidemiology and suitable measures against it. Duration of study—2 years. Execution in the 3rd year. Help can be taken from the following :

a) All India Institute of Hygiene and Public Health. b) Public Health Department of the State and the Centre. c) IMA. d) Mass organisations.

B *Nutrition* A State Nutrition Board may be formed to fulfil the following tasks :

i) To prepare the guidelines for upliftment of nutrition of the people and exercise constant vigilance over its maintenance. ii) to conduct research and survey of health status. iii) to spread education on nutrition among the masses. iv) to conduct training of nutrition workers.

State Nutrition Board may be constituted with the representatives of the following :

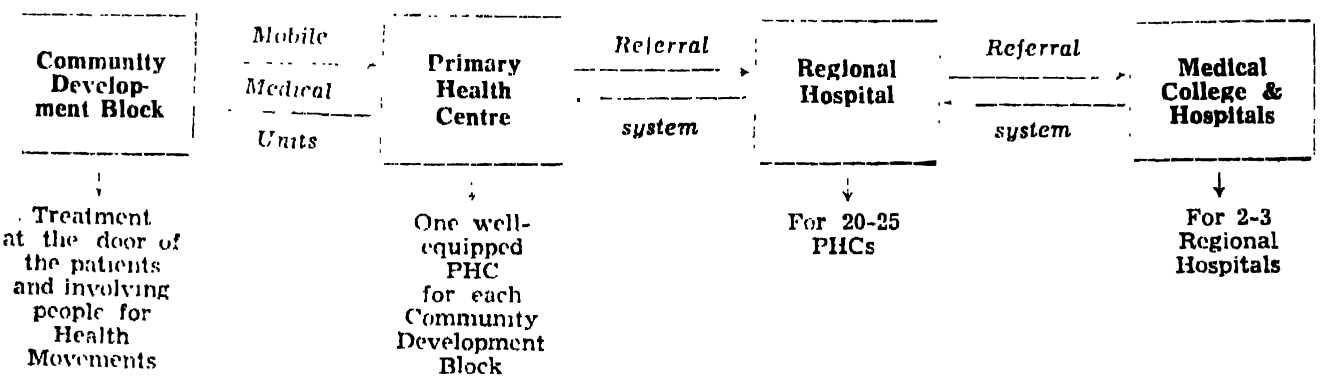
1) State Branch of Central Institute of Nutrition. 2) Public Health Department of Health Ministry. 3) Food Department. 4) Department of Animal Husbandry. 5) Department of Relief and Rehabilitation. 6) Department of Social Welfare and Community Development.

Only a patriotic and co-ordinated effort of all these departments and organisations can make a really people-oriented health policy successful.

This plan presents just an outline of the basic principles. Naturally there may be many modifications in the details of the plan.

We are convinced that a phased-out programme for its implementation will ensure the involvement of the people and is capable of providing better service even under the existing socio economic condition.

INTEGRATED HEALTH DELIVERY SYSTEM


Community Development Block
Mobile Medical Units
Primary Health Centre
Referral system
Regional Hospital
Referral system
Medical College & Hospitals
Treatment at the door of the patients and involving people for Health Movements
One well-equipped PHC for each Community Development Block
For 20-25 PHCs
For 2-3 Regional Hospitals

Acknowledgment - The main theme of this health policy has been taken from the paper, 'An outline of health policy for West Bengal' by Dr. G. P. Dutta and Dr. B. Ray Chaudhuri which was subsequently accepted by Working Committee and State Council, Bengal State Branch of IMA. Author acknowledges his indebtedness to his numerous colleagues who helped him to prepare this article.

A Draft on National Health Policy

NARESH BANERJEE

Chairman, Drugs and Appliances Standing Committee IMA, Bengal State Branch and Member, Therapeutics and Appliances Standing Committee, IMA (Headquarters)

Calcutta

HEALTH POLICY

Without a concrete and workable health policy it is next to impossible to meet the health care needs of the people of a vast country like ours.

HEALTH POLICY NEGLECTED :

The formulation of a comprehensive national health policy has been neglected for long. Since Independence we have noted with sorrow the following things :

i) Even after three decades of Independence of our country, the Government of India has failed to assess the actual health care needs of the country and to enunciate any national health policy for our people.

ii) The Government did set up several commissions to pacify the growing expectations of the people following Independence, but that only to shelve their recommendations later in the cold storage, to hoodwink the easily gullible people, and at the same time to point accusing fingers towards the doctors and para medical to cover up their own failures.

iii) Our Constitution is equally silent on people's inherent right to enjoy health and to receive proper health care, which should have been incorporated in the fundamental rights enumerated in the Constitution of India, instead of vaguely mentioning them under the Directive Principles of State Policy.

iv) Our national planners have also ignored the importance of people's health care as a positive measure for the economic growth of country by way of minimising the 'man days' lost and maximising the output of the working hours. They have failed to pay due importance to national health care by including this in the core sector of our national plans.

v) The doctor and the para-medical staff have so far failed to realise the importance of their service to the society by playing an effective role in the health care movement to fight out the anomalies and constraints. They seem to be still under the spell of the affluent Western society's outlook for health care.

BROAD OUTLINES OF HEALTH POLICY :

The broad outlines of the total national health policy for the people of our country should be to introduce a system of comprehensive positive health care with provision for promotion of health, prevention of diseases, prompt diagnosis with proper treatment in sickness or injuries and facilities for restoration of health and rehabilitation. This health care should cover the people in all stages and facets of their life from womb to tomb and it should cover every individual, irrespective of his social, economic and religious status, political affiliation and geographical and other constraints.

HEALTH POLICY CANNOT BE IMPLEMENTED IN ISOLATION :

i) Such a total and comprehensive health policy cannot be implemented in isolation. It is vitally integrated and inseparably linked with the socio-economic system prevailing in the country and is dependent on the provision for adequate food, potable water supply suitable clothing housing accommodation with a moderate degree of sanitation, basic education along with elementary knowledge of health care, improvement of living standard and adoption of measures against environmental pollution, communicable diseases, etc.

ii) Implementation of health policy should be integrated with the total national development programmes, i.e., the programmes which aim at allround improvements in various facets of socio-economic life of the people of our country by doing away with the feudal back-log and the imperialist colonial legacies. Thus the implementation of health care programme should be co-ordinated with radical land reforms for improvement of agriculture including measures for improvement of agricultural relations, agricultural production and animal husbandry : radical measures for improvement of industrial production and industrial relations : crash measures for augmentation of drinking-water supply, extension of basic education along with health education, control of communicable diseases and improvements of roads and communication facilities.

CONSTRAINTS IN THE WAY OF IMPLEMENTATION:

i) Within the prevailing socio-economic fabric of our country, it is a very difficult task to implement the above objectives in a short period, particularly when the basic needs of the people such as food, shelter, clothing, employment, education, etc., have not been guaranteed as yet and when 75 per cent of our people still live in neglected villages and nearly 70 per cent of our people live within the poverty line.

ii) From the above it follows that we shall have to implement the health policy in phases, in an integrated manner and in keeping with the total national development programme paying due consideration to the urgency of overcoming the economic and other constraints.

iii) It has to be admitted that such a total health care for the people of our country is very easy to spell-out but very difficult to achieve, unless and until we can remove the socio-economic constraints and colonial legacies through radical measures. But even in the existing socio-economic set-up there is ample scope for improvement in the health care system if maldistribution, improper utilisation and wastage of health care resource both in respect of men and material, lopsided planning, half-hearted implementation, corruption, maladministration, bureaucratic bungling and centralised execution without involvement of the people can be done away with.

CHANGE OF DIRECTION:

The present direction and orientation of health policy shall have to be changed from curative to preventive, from urban to rural, from individual to community and people, from emphasis on disease to that on the patient from static units to mobile field units. Priorities have to be fixed up to serve the best interests of the community at large, through popular health movement of the partners in health care and participation of the people, till the goal of nationalisation of total health service is achieved.

DRUG POLICY

OBJECTIVE OF NATIONAL DRUG POLICY.

i) A national policy on drugs should be a part and parcel of our National Health Policy. It implies that no person should suffer from or die of any illness for want of medicine and appliances, irrespective of his social, economic, political and religious status, geographical and other constraints.

ii) Medicines, chemicals and appliances required for protection of health, prevention and treatment of diseases, restoration of health and rehabilitation should be made easily available to all without any exception. The poor and the indigent sections of people should be provided with medicines free of cost without any obligations.

POLICY FOR EXTENDING DRUG COVERAGE:

i) Hardly 20 per cent to 25 per cent of our people have got some access to modern scientific medicine. Only 5 per cent of our people can afford the treatment in full and the rest 20 per cent can mostly afford it in part. This means 75 per cent of the people have got no access to modern medicine and roughly 50 crores out of the present approximately 64-crore population of our country is out of the range of the modern medicine even after 30 years of our Independence.

ii) Our interim objective during the Sixth Five-Year Plan should, therefore, be to extend the coverage of modern medicine from 25 per cent of the people as at present to 50 per cent by the end of the Sixth Five-Year Plan (by 1983-84). This has to be done particularly in respect of the 30 or 40 highly essential and life-saving drugs identified by the Hathi Committee and suggested by the WHO for which we will have to produce at least Rs. 600 crores worth of bulk drugs and about Rs. 1,800 crores worth of formulations at the present market rate.

iii) Our mid-term objective should be to extend the coverage of the total population at least with all the essential and life-saving drugs by the end of the Seventh Five-Year Plan, i.e., by the year 1988-89.

POLICY REGARDING PRODUCTION:

i) In keeping with the above objectives, production of essential drugs should receive topmost priority. All the manufacturing units should be geared up for production of bulk drug inputs and intermediates with allotments of production quota. The public sector shall have to play a leading role in it.

ii) For fulfilment of the population coverage target on a rough estimate we will require to produce Rs. 600/- crores of bulk drugs and Rs. 1,800/- crores of formulations by the end of Sixth Five-Year Plan and Rs. 1,000/- crores of bulk drugs and Rs. 2,500/- crores worth of formulations at the present market rate by the end of Seventh Five-Year Plan, upon additional capital investment of Rs. 400 crores and Rs. 750 crores respectively. Details in this regard have to be worked out.

iii) Production quota should be fixed in terms of quantum, not in terms of money or price, as our economy is passing through infla-

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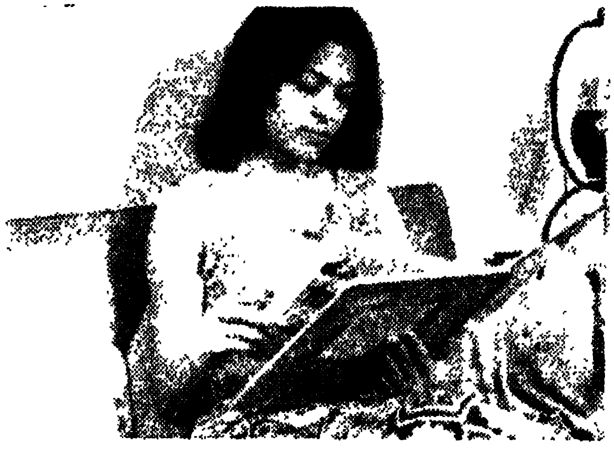

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tion, our budgets and Plan expenditure are being met by deficit financing, overdrafts, public loans, foreign and world bank loans.

POLICY REGARDING SELF-SUFFICIENCY :

i) Our country should achieve self-sufficiency in respect of bulk drugs required to manufacture the essential and life-saving drugs by using which more than 90 per cent of the illnesses prevailing in our country can be cured and prevented. Similarly, we shall have to be self-sufficient in respect of other drugs of marginal importance, therapeutic and diagnostic appliances and other accessories, through indigenous efforts or technology borrowed from other countries without sacrificing our national interest.

ii) Regional development of drug manufacturing unit in the public sector has to be encouraged to develop regional self-sufficiency.

iii) Development of organic chemicals, phytochemicals, petrochemicals, coal-based chemicals, biological extraction plant, x-ray films and radiography chemicals, and sera-vaccine plants are very essential for self sufficiency.

POLICY REGARDING MULTINATIONAL FIRMS :

i) Our aim should be nationalisation of the multinational firms in phases, till our national sector is technically developed enough to replace them in the sphere of essential drugs.

ii) The multinational firms should not be allowed to maintain more than 40 per cent equity shares directly or indirectly under any circumstances, even if they offer super-technology.

iii) They may be allowed to manufacture formulations provided those are based on indigenous bulk drugs from basic stage (not from penultimate stage), the quantum being not more than five times of their allotted bulk drug quota, and they shall have to hand over to the surplus to the public sector for distribution amongst the other production units.

iv) They must not be allowed to encroach upon the production field of small sector units.

v) They should not be allowed to manufacture house-hold remedies.

vi) At least one-third of their production capacity should be allotted for production of bulk drugs required for producing essential and life-saving drugs.

vii) They shall not be allowed to export at the cost of essential requirements of our country.

viii) They shall have to agree to abolish brand names and to introduce generic or pharmacopoeal names.

ix) At least 15 per cent of the value of the total production should be spent on research to meet the needs of our country with involvement of indigenous technology.

POLICY ON DRUG PRICE REDUCTION :

i) All forms of taxes, sales taxes, excise duty, octroi customs, surcharges, etc., on all essential and life-saving drugs should be abolished and these should be distributed free through the public distributing agencies to the indigent people, if necessary, with adequate State subsidy.

ii) Brand names of drugs should be abolished and replaced by those with generic or pharmacopoeal names in phases, starting with about 40 highly essential drugs and then gradually covering all the essential and life-saving drugs. Hundreds of millions of rupees are spent on creating brand image which is included in "Mark Ups" to increase the drug prices enormously.

iii) The freight charges on drugs should be reduced and made uniform throughout the country.

iv) We may have to import drugs and chemicals so long our country is not self-sufficient in the manufacture of bulk drugs, intermediates, solvents and other drugs from foreign countries at a competitive rate from whichever currency area it is found cheapest with guaranteed quality.

v) Central Government should see that the STC and IDPL should not resort to trade or profiteering in respect of bulk drugs required to manufacture essential drugs.

vi) There should be no intermediate trading agencies between the manufacturers and direct distributors in order to minimise the cost of drugs by avoiding profits of the middle traders.

POLICY REGARDING RESEARCH, DEVELOPMENT AND QUALITY CONTROL :

i) No country can thrive without basic research and technology. Both the State (public) and private national sectors shall have to pay due importance in organising basic research units with development of adequate fund and technical manpower. The multinational firms should set up research units attached to their production units with involvement of indigenous technology and shall have to earmark 15 per cent of their total production for research. The public sector shall have to play the leading role.

ii) Our country is rich in respect of technical manpower and talents but they are left uncared for, allowed to go waste or end in 'brain drain' causing huge loss to our country, in spite of the fact that many units are starving for want of technical talents. Government, therefore, shall have to take lead in organising scientific and technical pool at the central and at the various zones for the proper utilisation of the talents.

iii) The Government should set up regional research laboratory and drug control laboratory in every zone. Big and medium national units and the multinational firms should not only set up their own unit under the guidance of the Government for original basic research to correspond to the needs of our country but also for quality control and analysis of the drugs and chemicals. These units should offer technical guidance, quality control test and analytical help to the smaller units.

iv) There should be co-operation and co-ordination among the research units of the Government, the quasi- and non-Government units and the university research laboratories for improvement of research, transfer of technology and better training facility.

PHARMACY TRAINING SHOULD BE IMPROVED AND EXTENDED:

i) There are about one lakh pharmacists of various grades in India, out of which pharmacy graduates and postgraduates number about 4500, diploma holders about 14,000 and certificate holders nearly 81,000. But we have got about 2 lakhs of health care delivery units, 3000 drug manufacturing units, several pharmacy colleges and 106 medical colleges, several drug research and control laboratories, drug inspectorates, etc., besides the annual attrition of over 1000.

ii) To make up the great shortage of pharmacists in our country the Government should see that a) the number of pharmacy colleges is increased with an increased number of admission, b) the 2-year diploma course is started in centres attached to the existing medical colleges with 50 annual admission and c) the 1-year certificate course is started in centres attached to the district hospitals. This period can be reduced to 6 months for those who worked as dispensing assistant to doctors or pharmacy degree holders for more than five years. Fake pharmacy registration should stopped forthwith.

REVISION OF NATIONAL FORMULARY:

There are more than 57,000 items of drugs and chemicals in our National Formulary. This formulary needs urgent revision. Unnecessary and back-dated items and items with no therapeutic value should be discarded from it and in their place established new remedies should be included. Its list should be classified as follows: i) highly essential and life-saving, ii) essential and life-saving as identified by the WHO and the Hathi Committee, iii) moderate therapeutic value and iv) marginal therapeutic value. All these classifications should be done keeping in view the predominance and importance of diseases prevailing in our country. The National Formulary should also incorporate indigenous drugs and phytochemicals found to have therapeutic value after proper assessment.

POLICY ON MEDICAL EDUCATION

i) The undergraduate medical education gradually evolved in our country towards the second-half of the 19th century to serve the purpose of the British rulers in India, of educating the medical personnel through a degree or diploma oriented urban pattern of training without having any relation to the socio-economic realities of our country and health needs of the people.

ii) After Independence opportunities came for re-orienting and re-thinking, but those who were entrusted with the task had their thought-process patterned and trained along the lines of the British masters under whose patronage they had their higher education at UK and elsewhere. Naturally our whole education reforms suffered from British colonial legacies and no basic changes could be made in the sphere of medical education corresponding to the needs and peculiarities of our country.

iii) Our medical education should be need based and oriented towards the people and community. It should have a rural bias and should not be degree or diploma centred. We require to train an adequate number of "basic doctors", whose training should be "prevention oriented" and "patient oriented" with adequate "flexibility and adaptability" to satisfy the needs of people's health care in rural and urban areas, in fields and factories. They should have adequate clinical acumen to diagnose and treat people without the help of sophisticated medical gadgets, under extreme climatic conditions and geographical constraints, as a partner of the local community of people to serve the role of leader in the field of their health care.

UNDERGRADUATE MEDICAL EDUCATION (BASIC DOCTORS):

i) Admission should be after 10 years of school education plus 2 years of para-medical (pre medical) education, and selection should be made through a competitive entrance examination in which the candidates are to secure 50 per cent marks in science subjects and 40 per cent marks in language. The selection should be done by a selection board to be constituted with representatives from the State Government, university, health department of the State Government, principals of the medical colleges, IMA and the Medical Council. Merit, aptitude and physical fitness should be the main criteria for admission. Domicile restrictions and special preference for the backward classes may continue; district quota and age restrictions may be relaxed or abolished. The number of admission per medical college should not be less than 100 and more than 150 per year, otherwise it will become either uneconomic or unmanageable. A fixed calender for routines of classes and examinations so that both the teachers and students can prepare themselves beforehand. Results of all the examinations should be published within 2 to 3 weeks of holding the examinations, as is being done the world over.

ii) The 4½-year semester system of M.B.B.S. course comprising 1½ years of pre-clinical and 3 years of clinical course, which has been newly introduced by the Medical Council of India, should be introduced in all the 106 medical colleges without exception. Both the Government and the university should see that this course is implemented everywhere with provisions for an adequate number of teachers, suitable accommodation, properly equipped laboratory, etc.

iii) There are back logs of examinations to be held varying from 2 to 3 years in some universities. These should be cleared up in a short period through a suitable programme of teaching and examination.

iv) There are some constraints in the new semester system which should be removed and amended early, as follows : a) Some uncommon theoretical items have been incorporated, which ought to have been done in the postgraduate course. b) A student is required to secure 50 per cent marks in each of the theoretical, oral and practical examinations in the same subject. This 50 per cent marks should represent the marks in all the 3 components of examination in a subject taken together. c) The syllabus still suffers from urban orientation and is far from being need-based or having a rural orientation of teaching and training. It cannot cater to the health care needs of 75 per cent of our people, who live in villages.

INTRODUCE RURAL ORIENTED TRAINING:

i) In order to lay the foundation of rural and people oriented health services, the universities, the Medical Council of India, and the Government shall have to introduce compulsory rural training for a minimum period of two months in community health care during the pre-clinical years and for a minimum period of three months during each year of clinical studentship preferably in upgraded Primary Health Centres with residential facilities. At least 25 per cent of the marks should be allotted on rural training assessment.

ii) The training pattern of the interns and house-staff shall have to be changed. They should be considered as in-service trainees with all facilities including antedate as are avilable to Health Service doctors, while considering their permanent appointment. The interns and house-staff shall have to spend six months in a year in district hospitals, sub divisional hospitals and upgraded Primary Health Centres and six months in various departments of the medical colleges respectively in rotation.

iii) After completing house-staffship they should be attached for one year to the PHC including rural mobile unit and in sub-divisional and district hospital for another year (six months in each). This training-cum-service should be compulsory for all to secure admission into postgraduate degree and diploma courses, to get admission into any medical service in our country or to secure clearance certificate for foreign service or further study.

iv) After fulfilment of the above conditions one can sit for postgraduate admission test for selection mainly on merit basis. On selection they should be posted as senior house medical officers (in service) in the department of particular branch of postgraduate speciality.

TEACHERS SHOULD BE WHOLE-TIMERS AND NON PRACTISING:

i) Teachers have to be whole-timers and non-practising in order to improve the standard of teaching and training of medical students, both in the undergraduate and postgraduate stages. This will enable them to pay undivided attention to the training of students and completing their course in time under the semester system, to maintain punctuality in taking classes and clinics and to devote more time for practical patient-oriented clinical training. The students will also learn better under the direct guidance of the teachers, as they would not have to hunt for notebooks or favourite questions, 'catch' the examiners or join costly private coaching. They will be less inclined to rig the examination by adopting unfair means, to launch movement for postponment of examination or to coerce the university into allotting disgraceful grace marks.

ii) It is often found that many good doctors and teachers are not attracted to join the State Health Service on account of the poor pay-scales and lack of other facilities of this service. Medical teachers should therefore be provided with adequate pay and other allowances as per scales laid down by the Medical Council of India or at least the CGHS scale with adequate non-practising allowances and provision for residential accommodation in the college campus.

iii) The State Government shall have to introduce "Medical Teaching and Research Cadre" as a special cadre, with emoluments as suggested above, which is essential for improvement in medical teaching and for initiating basic medical research suitable for our country and people.

iv) Doctors having best careers both during their undergraduate and postgraduate studies, having an aptitude for teaching and research and a proven concern for the people's health care, students training and social service, should be selected for the "Medical Teaching and Research Cadre", in order to develop better teacher-student and doctor-patient relationship. Such medical teachers can be relied upon to serve as an active and conscious partner to motivate the young doctors to play an active role in the sphere of health care in co-operation with other forces mobilised for integrated social development.

v) Special training course like BT, MT, etc., shall have to be introduced for the "Medical Teaching and Research Cadre".

TRAINING REGARDING OTHER BRANCHES OF MEDICINE:

Similar procedures shall have to be adopted for i) dentistry, ii) nursing, iii) pharmacy, iv) radiology, v) pathology, vi) biochemistry, vii) tropical medicine, viii) public health, etc.

PARA MEDICAL TRAINING:

The para-medical staff pattern for an underdeveloped country has been suggested by Dr. K. N. Rao at the ratio of one doctor to 20 paramedicals of various grades and disciplines such as nurse, auxiliary nurse-cum-midwife, sanitary inspector, vaccinator, malaria worker, socio-medical worker, pharmacist, radiographer, laboratory assistant, laboratory technician, tuberculosis and leprosy health worker, multipurpose health worker, family welfare worker, health educator, etc. They are all partners of health care. But the health care pyramid in India is upside down. Suitable steps should therefore be taken to fulfil the 1 : 20 ratio norm.

RURAL HEALTH CARE POLICY

There is no proper ecological and epidemiological studies of the rural areas of our country and no proper people-oriented assessment of the health needs of rural areas covering preventive and curative aspects even during the last thirty years. In absence of those it will not be possible for us to suggest concrete and comprehensive health plan for the rural areas of the country. However, broad outlines have been suggested below :

i) At present about 75 per cent of our total population lives in villages, that is out of the present population of about 63.5 crores about 50 crores live in about 5.8 lakh villages in India, whereas only 30 per cent of the total health care resources are being deployed for the rural population. IMA demands complete reversal of the lopsided direction of this trend to be attained in phases. This should start with the health plan of the Sixth Five-Year Plan as "Rural-oriented Health Care Plan".

ii) If success has to be achieved with such a rural health plan it must be integrated with the general socio economic development programmes in the rural areas and must ensure involvement of the rural people. The plan has to be implemented in close co-ordination with the various facets of development projects, such as augmentation of potable water supply to prevent water-borne diseases, improvement of roads and communication facilities, improvement of agriculture through construction of embankments and canals for irrigation, increase of food production and nutrition, setting up of schools for general education with provision for imparting health education, housing projects and programmes for improved sanitation through construction of sanitary latrines and flushing of waterlogging to prevent communicable diseases, etc., upliftment of rural economy through development of cottage industry, and development of animal husbandry to improve milk supply, etc.

iii) There are 106 medical colleges in the modern system of medicine for approximately 64 crores of people and roughly about 60 lakhs of population each medical college have to deal with. The Bhore Committee suggested one medical college for every 30 lakh people, and the Mudaliar Committee suggested one medical college for every 50 lakh people. To bring about rural orientation of medical education, it is essential to know the health conditions of the 75 per cent of our people.

iv) For bringing about rural orientation of medical teaching, there should be provision for imparting 2 months compulsory rural residential teaching at a Primary Health Centre in community medicine for each year of pre-clinical course, and for imparting 'patient oriented' and 'rural health care' oriented training for a period of at least three months during the years of study of clinical course.

v) Similarly, during period of rotating internship and rotating junior house-staffship, which should be taken as in-service training, 50 per cent of their period of training should be in

PHC and sub-divisional and district hospitals and 50 per cent in a teaching institution.

Within the jurisdiction of a single medical college there should be at least 60 Primary Health Centres (PHCs) on an average basis of one PHC for approximately one lakh people. These PHCs should constitute the main edifice of rural health care at the Block level or Anchal Samity level, both for preventive and curative health care. There should be provision for at least 50 beds by the end of Sixth Five-Year Plan in each PHC and an annual increase of 10 beds, so that by the end of Seventh Five-Year Plan, i.e. by 1988-89, all the PHCs should have 100 beds (for medicine, surgery, obstetrics and gynaecology, paediatrics and infectious diseases) properly manned and staffed, with diagnostic facilities including x ray on the institutional curative side, referral arrangements to sub-divisional and district hospitals for treatment by speciality units, and to medical colleges for cases to be treated by super-speciality units.

vi) There should be at least one 'Health Unit' for 10,000 people approximately at the Gram-Panchayat level where mobile medical units of PHC shall have to pay visit at least twice a week and have to be manned by multi-purpose health workers (MPHW) under the guidance of doctors from medical colleges or senior house-staffs.

vii) Moreover, there should also be one first-aid health post for about 2,000 people, to be manned by a rural health worker (RHW), to be selected by the PHC medical officer from amongst local people of the village recommended by the Gram-Panchayat, who has read up to class X and has undergone special training for six months in the PHC to carry out elementary first-aid-cum-family welfare and work for control of communicable diseases in his area.

viii) The PHC, besides serving as a training centre should be the centre for co-ordinating the activities of not only the various types of curative health care but also those of preventive and social health care such as control of malaria, filaria and other communicable diseases, provision for rural water supply, health education, antituberculosis and antileprosy measures, mother-craft, family and child welfare, etc., and the improvement programmes having direct bearing on health and sanitation to be executed through the Gram-Panchayat or Panchayat Samity (Block) with active participation of various grades of health workers, medical students, internees, house-staffs, medical officers of PHC and teachers of medical college.

ix) Sub-divisional and district hospitals:

a) There should be one sub divisional hospital (SDH) for about 5-lakh people, starting with 100 beds and gradually increasing the numbers to 250 in different specialities, i.e., medical, surgical, eye and ENT, dental, obstetrics and gynaecology, paediatrics, infectious diseases, chest diseases, etc. It should have outdoor treatment facilities to serve as diagnostic and therapeutic polyclinics and also serve as mid-referral hospital between PHC and district hospitals. An SDH should also serve as a training centre for various para-medicals and junior doctors and as a co ordination and guiding centre for providing health care through PHC.

b) There should be one district hospital for about 20 lakh people, starting from 250 beds and gradually increasing the number to 500. It should be equipped with various specialist departments both indoor and outdoor, i.e., general medicine, cardiology, neuromedicine, chest diseases, skin and STD, eye, ENT, dental, leprosy, orthopaedic surgery, general surgery, paediatrics, family welfare, obstetrics and gynaecology, infectious diseases, radiology-radiotherapy, etc. It will serve as a referral hospital for the PHC and SDH and mid-station between the medical college hospital (MCH) and sub-divisional hospital (SDH). A district hospital should also serve as an advanced type of training centre for para-medicals and junior doctors and as a co-ordination and guiding centre both for curative and preventive health care. There should be provision for intensive care unit, ressuscitation unit and casualty care unit and facilities for blood bank, advanced biochemical tests, and advanced type of mobile and emergency care unit so that it can respond to the call of emergency from a PHC and an SHC.

x) There should be a health and socio-economic survey unit in each district to study ecology, epidemiology, nutrition standard, sanitation, etc., to monitor the implementation of the socio-economic and health programmes to rectify their weaknesses in time and to highlight the significant achievements.

Per Capita Health Expenditure only Rs. 9.44

The per capita expenditure on health in the country during 1974-75 was Rs. 9.44, the Union Health Minister, Mr. Raj Narain, said in the Rajya Sabha. In a written reply to Mr. M. M. S. Siddhu, the Minister said that among the States, Nagaland had the highest per capita expenditure with Rs. 80.84, and the lowest was in Bihar with Rs. 4.09. In Uttar Pradesh it was Rs. 5.08.

The States where the per capita expenditure on health was below Rs. 10 included Andhra Pradesh (Rs. 7.85), Assam (Rs. 9.56), Gujarat (Rs. 8.57), Haryana (Rs 9.99), Karnataka (Rs. 8.81), Madhya Pradesh (Rs. 8.38), Orissa (Rs. 6.93), Tamil Nadu (Rs. 9.81) and West Bengal (Rs. 6.78) · Times of India, 4-8-1977.

Equal Health Care for All

T. M. PAUL

Organising Secretary, 54th All-India Medical Conference,

Cochin

To express concern for rural health care has become the fashion of the day. Inaugurating with fanfares various fancy projects to give health care to people residing in rural raeas has been the time honoured practice of all Union Health Ministers since Independence. For these projects an universal ingredient is "Instant doctors". They come in with various names, such as 'Basic Doctor', 'Barefool Doctor', 'Community Health Worker', 'Unqualified or Untrained Medical Practitioner' etc. Various schemes have been in operation like Primary Health Centres, mobile dispensaries, various forms of medical camps and so on. With all these projects, schemes and plans so far no preceptible difference has been manifest in the health care of the rural people of India.

It has also become the fashion for political leaders and leaders of various organisations in the community to criticise modern medical practitioners. It is being asserted, often very forcibly and with some apparent rationale as well, that modern medicine as practised today is suited for the rich urban population and therefore it cannot be the model for the people of India as a whole. Rightly or wrongly many believe that the M.B.B.S. curriculum, as it is followed today is not suited for India.

Recently the Union Health Minister seems to have developed an allergy to modern medicine. His solution to the rural health care problem is a hotch-potch training for 3 months to a group of people styled as Community Health Workers (barefoot doctors) who will be armed with medicines from all systems.

Now let us assume that modern medicine has failed miserably to provide health care to rural India. If so, let us analyse an essential ingredient for the human survival or for that reason any biological system that is known on this Earth, and its availability in rural India, namely, potable water. So far these same politicians and rulers have miserably failed to give potable water supply not only to Indians living in rural areas but also to those who are in urban areas. Even major cities in India do not have clean protected water supply for all its inhabitants.

So if one accepts the above argument, protected water supply system is complete failure in India and therefore let us not waste time and money to supply potable water at all!!!

That is the type of logic that govern the policy makers of India and ultimately it is the health of the nation that suffers.

In my view there is no use for our framing policies and ideas unless we are prepared to take the scheme to the people, educate them in the pros and cons and through them force the politicians to accept the rational and same policies. As it is, the present political leadership (as also the previous one in power for nearly two decades) does not seem to be inclined to follow the ideas and views of technically qualified people nor it is interested to uplift the suffering masses of India.

An organisation like IMA should think of ways and means to educate the public and make the people of India understand that they have a right to have equal health care, i.e., every citizen has a right to claim the best treatment. If President Shri Neelam Sanjeev Reddy could be flown to New York for an operation that could be done by at least over 1000 doctors in India in several hundred centres, why not an ordinary citizen? If the Prime Minister Sri Morarji Desai's wife needs hospitalisation at Jaslok Hospital, should he not cease advocating ayurveda and urine therapy for rural people. So also about Sri Raj Narain, our ex-Union Health Minister. If he could get admitted for a check up at Willingdon Hospital and A.I.I.M.S., why not the same facility be made available to all citizens?

First of all, it is the duty of IMA to announce that as doctors we do not have anything like second class of medicines and treatment for rural people. We think that all human beings are alike.

For the sake of example just look at the case history of Shri Neelam Sanjeev Reddy. He went for a dental care, a routine chest x-ray as a pre-operative preparation which revealed a coin lesion. Let us substitute Shri Ram of same age group from a village nearby Delhi going to a dentist for similar complaint even to A.I.I.M.S. Well he would have had a dental extraction. A month later he sees a GP for cough. Some cough mixtures and aspirin for pain are given. A few months later when cough is still worse he is being treated with some antibiotics, later on to antituberculosis treatment. He might have had pawned all his belongings to get these treatment. In despair he might turn to homoeopathy, ayurveda, unani and miracle cures in turn. Perhaps a year after his dental extraction he is brought to a major civil or teaching hospital, where an x-ray chest reveals inoperable carcinoma of lung with secondaries.

This is what is happening to our fellow citizens today. Should the IMA fall to the popular political sologans of rural health care ?

I think we should demand that all citizens irrespective of whether he lives in the Himalayas or the Lakshadeep in Arabian Sea should have equal chances opportunity and facilty to get the most modern, scientific, medical care.

If the nation can produce aeroplanes, ships, atomic bomb, space sattelites why not medical care for all ? Let us not discriminate between Indians dwelling in different geographical areas of the country.

Several of the developing and developed nations of this World are utilising the services of modern medical practitioners from India to give health care to their people but we in India have miserably failed to utilise these experts. On the other hand, our policy makers and leaders have developed a pathological hatred towards modern medical practitioners. If Indian doctors can share the responsibility of giving medical care to people spread over three continents why not they be entrusted to give the same care to their own people ? It is the political decision, one may conclude, that stands in the way of giving proper care to our people.

It is equally important to point out that health should not be considered as a consumptive expenditure. If the total economic loss due to illness is computed one can very well realise the importance of health as a productive investment. At least 10-15 per cent of the total budget should be allocated for health care of its citizens.

HEALTH EDUCATION :

The most singular factor that can turn the tides of ill health in the general population is health education. All school children starting from the kindergarten should be taught about health science, just as social science, general science, general mathematics, etc., which are included in the school curriculum. Health science should be a compulsory subject to all children at all levels of education up to graduation.

In health science the basic anatomy and physiology of man should be taught. It should also include the causes and natural history of common infectious diseases, their prevention, necessity of environmental hygeine, need for proper disposal of human excreta and the importance of using protected drinking water. Does it need a great financial outlay to teach a child to use only boiled and filtered water ?

At a later stage in higher classes sex education including population demography and family planning should be taught.

Just imagine the enormous benefit the national health will accrue by having a national health education programme. It may not need any added financial outlay other than one more textbook and subject for studies.

COMMUNITY HEALTH WORKERS :

It is necessary to have community health workers. Their training period should be for one year with basic qualification of secondary school certificate. They should be trained in the methods of preventing 'preventable' diseases including immunisation, balanced diet, environmental hygiene and family planning measures. They should not undertake therapy for afflictions. There should be one such worker for every 1000 population.

In order to function effectively this cadre should be under the Union Government and not under the State or local bodies mainly because of the fact that infections do not respect man-made boundaries.

DOCTORS :

If we consider that all those who call themselves as doctors (medical practitioners) as competent to look after the sick people, then India should not have any problem with health care. Because we will have a doctor-patient ratio of 1 : 200, possibly the highest in the world, if we compute all practitioners in modern medicine, ayurveda, unani, siddha, homoeopathy, naturopathy, urinopathy, etc., and the million and odd unqualified and untrained quacks. Then, why there is a hue and cry about the need for more doctors. All people at all places in India are looking for M.B.B.S. doctors and that is the truth.

At present there is an enormous wastage of medical graduates because of the high percentage of failures at medical studies. This is a tremendous loss. We could raise these pass rates to 90 per cent or more by suitable reforms at teaching, evaluation of candidates and modalaties of examination. If such reforms are effectuated we can get 150 per cent increase in the number of doctors coming out of our medical colleges.

These graduates should be given every possible encouragement to set up practices in the places of their choice, be it the rural or the urban area. For this purpose a National Medical Finance Corporation of India should be set up with branches in all districts throughout India under the Union Government. Such a corporation should give loans to doctors setting up practice at rural areas at 3 per cent interest per annum repayable in 15 to 20 years and in urban areas at 7 per cent per annum repayable in 10 years time. The security for such loans should be only the equipment, drugs and buildings, etc., needed for the dispensary or nursing home as the case may be. To encourage doctors to go to rural areas a grant of Rs. 25,000/- should be given to each doctor who is willing to stay and practise in rural areas for a minimum of 5 years, that is to say, they should be helped with a grant of Rs. 5,000/- per year. This is a very small sum compared to the service the people can get from an M.B.B.S. doctor.

To begin with, the National Medical Finance Corporation should have a capital of Rs. 200 crores. Even if one imagines that a doctor on an average will take Rs. 1 lakh as loan, the initial outlay will benefit 20,000 doctors and make them set up practice with no expenditure from the exchequer whereas the repayment of loan, can be used to further finance more doctors to set up practice. Every year another Rs. 100 crores should be added to the capital of the National Medical Finance Corporation until it reaches an outlay of Rs. 1,000 crores. The Government will thus save an enormous amount of money which can be used to give protected water supply. Such a scheme will also attract a number of doctors who are abroad now to come back and settle down in India especially in rural areas. As an added inducement those who parctise for a minimum period of 3 years in rural areas should be given preference for postgraduate admission.

GOVERNMENT HEALTH SERVICE:

The Government is supposed to be giving free health care to all citizens. What does "free" mean ? The doctors, nurses and para-medical staff do not work for nothing. It only means that they are paid out of the national budget and the budget is supported by the patients. It is not free treatment, it is depersonalised treatment. At the primary level of family physician there should not be any free treatment. Except for those who are declared poor, all the rest must be charged, be it 10 paise. It is concievable that for expensive investigations in a larger hospital, the procedures can be subsidised.

Government health service has been, by and large, a failure. Because of the inherent hierarchial nature of bureaucracy with its adherence to bye-laws, rules, regulations, Governmental orders and procedures it will not be possible to tackle human problems like sickness and suffering. In fact the major civil hospitals have been useful only to politicians, bureaucrats and rich people. Therefore, to expand the Government health services in the curative aspect with a view to covering the entire nation will be a total disaster. It will function with the same, if not worse, efficiency as in the case of the now nationalised services like railways, airlines, road transport (whenever it is nationalised), civil supplies, electricity boards, water supply, etc.

SELF EMPLOYED DOCTORS:

Self-employed doctors shall be the only solution for a national health care. This is so because medical practice depends upon the personal rapport between the patient and doctor, apart from the modern gadgetary needed for proper investigation and treatment. To achieve that a National Medical Finance Corporation, as envisaged earlier, will be an essential prerequisite.

It will also be a good idea to encourage more Indian doctors to go for employment in countries of West Asia, Africa, etc. It is unlikely that anyone of them will be able to settle down in those countries. On the other hand, they will return with large earnings, equipment, rich and varied experiences and settle down as self-employed doctors in India. These doctors will maintain higher standards of practice because their pecuniary needs are already satisfied with earnings abroad and will be in a better mood for real service to their fellow countrymen.

POPULATION CONTROL:

Population control should be treated as an urgent necessity. The country should achieve a net reproduction rate of 1.0 by the year 1990. When net reproduction rate of 1.0 is reached it does not mean population will cease to grow but it will take another 6 to 7 decades before stationary population is achieved.

To achieve this the services of self-employed doctors should be used. The Government programme because of its inherent inefficiency and corruption will never achieve the target. All appliances and medicines used for population control should be given at a nominal cost throughout the country to all practitioners and people. The self-employed doctors and their patients should get all benefits in carrying out family planning measures.

MEDICAL EDUCATION AND MINIMUM QUALIFICATION FOR MEDICAL PRACTICE:

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Moore, C.V.: "*Iron Malnutrition*", in *Clinical Nutrition*, 2nd ed., Norman Jolliffe, ed., New York, Harper & Brothers, 1962, pp. 319-343.

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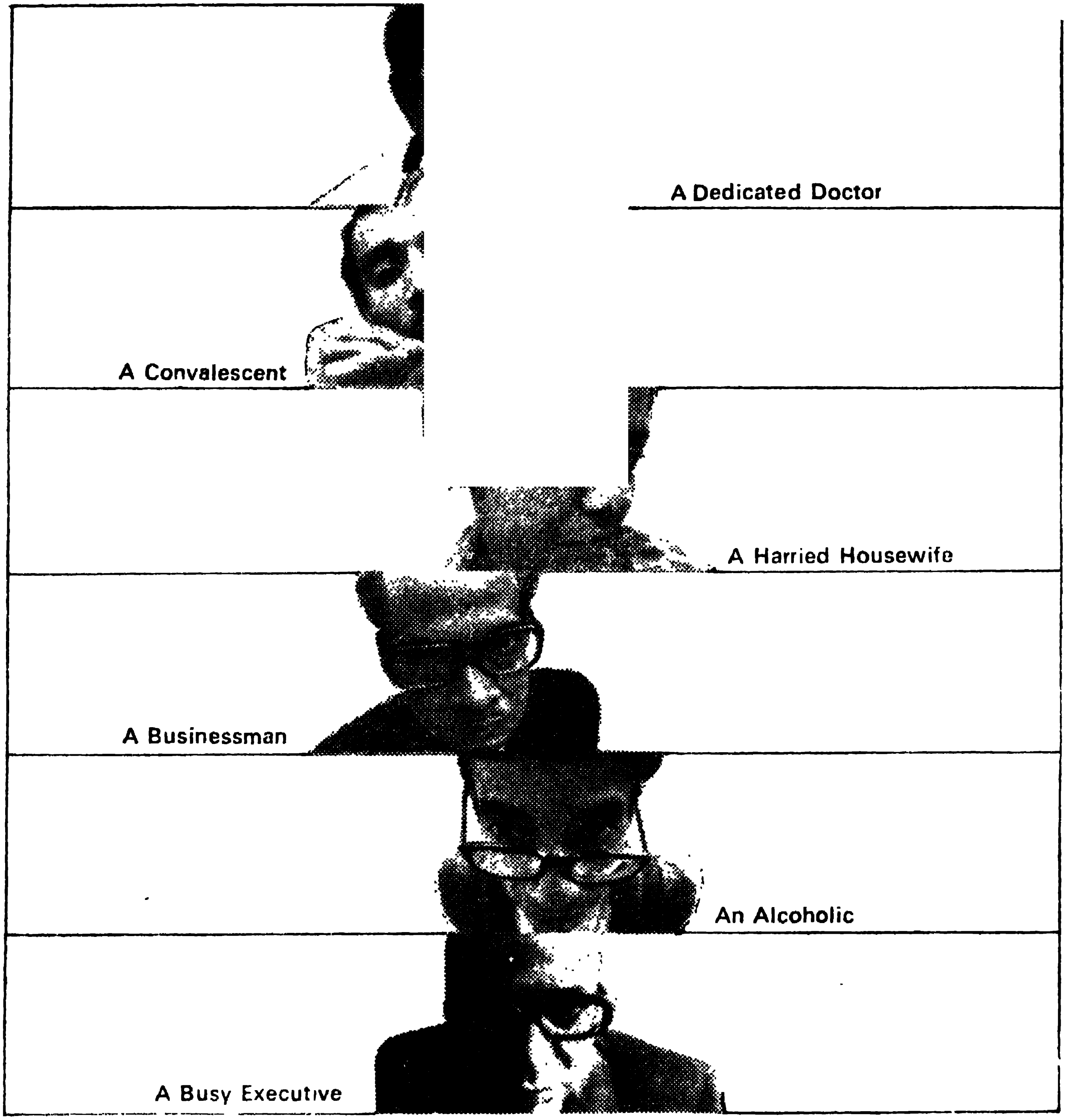

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M.B.B.S. should be the minimum qualification for medical practice in India in any form. All other systems like ayurveda, unani, etc., should be subjects of specialisation after obtaining M.B.B.S. degree. This should be our minimum demand.

M.B.B.S. curriculum is fairly adequate, with marginal reforms it is possible to raise the standard of medical education. But the main fault is not in the curriculum but in the medical teachers and teaching institutions. A vast majority of teaching institutions being under the Government, the familiar political interference and corruption have become a permanent feature of our medical colleges. It is necessary that the medical colleges and affiliated hospitals should have a greater measure of autonomy and should be freed from political interference.

Teaching staff The teaching staff pattern should be radically changed. The present pyramidal hierarchial system should be scrapped. Instead apart from the administrative need, members of the teaching staff with equal qualifications and minimum 5 years teaching experience should be treated on par as associate professors or in similar rank. Each such teacher should be responsible for a fixed number of students, preferably not more than 10 at any given time. If the pass rate is less than 90 per cent then the teacher-in-charge should cease to be a member of the staff.

There should be two groups in the teaching staff. One-half of the total member should be research oriented and their appointment should be based on, apart from the usual qualifications, their research background. The teachers should be allowed to go abroad or to general health service or to do private practice for 5 years for every 10 years of completed teaching tenure. This will give them a refreshing period during which time they can have experience of what is going on outside their academic cocoons.

Examinations — Concurrently no student should be allowled to repeat the examination in the same subject more than thrice. The student should have the freedom to choose the time for written examination within the minimum stipulated period. In all examinations there should be multiple choice questions with an agreed correct answer by the Board of Examiners in each subject, so that revaluation can be done any time.

Apart from the present university examinations the Medical Council of India should conduct an all-India licencing examination before the graduates are given permanent registration. Initially this can be limited to the candidates sitting for written multiple choice papers. This will have a salutory effect of getting a minimum national standard for the M.B.B.S. degree.

Postgraduate—In postgraduate studies, training and self-teaching should be the main pattern. Didactic lectures should be abolished, instead seminars with participation by the candidates and discussion in small group on topics of interest should be instituted.

Facilities of teaching institutions should be updated and instruments should be kept in good working conditions.

Apart from university examinations the Medical Council of India should institute a National Board for each speciality and conduct examinations. The Medical Councils and Governments should recognise only the certificate-holder of the National Board as a specialist.

Continuing education This should be an essential programme and we should aim at having periodic examinations for re-registration with the Medical Councils. Until this is nationally accepted a minimum attendence should be insisted on at refresher courses, seminars and scientific sessions before giving re-registration. Re-registration every five years should be instituted without further delay.

Essential Elements for Health

You may ask what, within any range of elements, are those that are essential to the attainment of health for all. I suggest that they include adequate food and housing, with protection of houses against insects and rodents; water adequate to permit cleanliness and safe drinking; suitable waste disposal; services for the provision of ante-natal, natal and post-natal care, including family planning; infant and childhood care, including nutritional support; immunisation against the major infectious diseases of childhood; prevention and control of locally endemic diseases; elementary care of all age groups for injury and diseases; and easy access to sound and useful information on prevailing health problems and the methods of preventing and controlling them.— H. Mahler, WHO Chronicle, **31**: 492, 1977.

Health Care of Tea Garden Employees

P. K. CHOUDHURI

Convener, Sub Committee on Service Condition of Plantation Doctors, IMA (Headquarters)

Calcutta

Tea industry is one of India's largest foreign exchange as well as revenue (in the form of excise duty and cess) earners and though the exact number is not available, approximately 10 lakhs of our countrymen are working in this industry. While medical benefit of the industrial employees is catered through panel doctors or service dispensaries under the provisions of Employees State Insurance Scheme, tea employees are entitled to medical care according to the provisions of Plantation Labour Act which has been enacted by the Centre and enforced in the tea producing States with modifications to suit the local conditions. The Plantation Labour Act provides that medical care and medical benefits in the form of sickness and maternity benefits, etc., have to be given to their employees by the employers, but it is not clear and unambiguous about the medical care to be given to the employees and their families. Taking advantage of the ambiguity and vagueness of the provisions of the Act the employers cater medical benefit to the employees and their families in the way that suits them. As a result tea garden employees and their dependants are practically left at the mercy and pleasure of these employers so far as medical care is concerned.

The limitations of the medical care and medical benefits received by the tea garden employees will be clear from an analysis of the broad features of the Act:

1) The Act provides that ordinary medical treatment has to be given to the employees and their dependants. For any specialised treatment employees or their dependants have to be referred to the nearest central or group hospital or the Government hospital. A clear-cut definition of ordinary medical treatment has nowhere been given thereby leaving the quantum and quality of the treatment quite vague. The central hospitals and group hospitals are practically non-existent, excepting only the few located in Assam. The nearest Government hospitals, that too of the type of sub-divisional hospitals or PHCs, are situated far away from most of the tea gardens.

2) The tea gardens are required under the Act to maintain hospitals with a minimum of 10-12 beds. They are to maintain and run the outdoor dispensaries with the assistance of staff like pharmacists, nurses, dressers and other assistants. Majority of the tea gardens do not maintain any hospital at all. Where any hospital is maintained it is not worth the name. Even now the majority of labour cases of female employees or wives of male employees are managed in the slums or settlements of tea gardens by indigenous *dais* which often result in various complications and even in death of both mothers and babies.

3) The sickness and maternity benefits provided under the Act are paid in a most unsystematic manner according to the sweet will of the employers. In most cases the illiterate labourers are deprived of their legitimate dues.

In a good number of tea gardens there are no qualified doctors at all and the employers make no arrangement for regular check-up of sick employees and for preventive and curative treatment for them and their dependants.

Till now tea gardens are exempted from the cover of the Employees State Insurance Act and the Government have so long maintained this stand possibly out of the expectation that the employers would cater medical benefit to the employees as per provisions of the Plantation Labour Act. Government expected that regular visits by the officials of the Labour Department would help in the implementation of the provisions of the Plantation Labour Act thereby ensuring the availability of medical benefits to tea garden employees. In fact these hopes of the Government have been belied, may be due to either the failure of the officials of the Labour Department to cope with their official duties or their neglect, willful or deliberate, to carry out the inspection of each and every garden. Lack of periodical inspections obviously gives an opportunity to the employers to escape penal provisions of the Plantation Labour Act and reap the advantages of the lacunae of the Act.

Since the Act provides medical care for the employees and their dependants the total population entitled to medical care under the Plantation Labour Act comes to about 50 lakhs. Up-till now the employees have not made any efforts to determine the doctor-population ratio for the garden population. Whereas the Indian Medical

Association thinks that the ratio of doctor-population should be based on the number of persons entitled to get the medical benefit, the employers are taking their stand on the basis of the total number of employees only. Consequently, a huge work load has to be shouldered by the medical officer of a tea estate and in spite of his best efforts he is not in a position to cater medical aid worth its name to the population of the estate with the meagre supply of medicines placed at his disposal. Moreover medical care does not mean only treatment of the sick. It cannot be isolated from the environmental factors like sanitation, dwelling house, supply of pure drinking water, etc. In spite of the facilities of grants, subsidies and loans on deferred payment basis which are being extended to the tea estates by the Government, the living conditions of the tea garden employees including the sanitation and water supply remain in the same miserable state as before.

The bulk of the tea garden labourers consists of Tribal people. The Government has drawn up different schemes with allocations of funds for welfare of the tribal population. We do not know what has been the fate of these projects. But in many gardens it can be found that even the staff quarters and in some gardens even the officers' quarters are no better than hovels in the slums.

In a tea garden the entire administration and supply of daily necessities are in the hands of the management of the garden. Supply of rations, drinking water, electricity (most of the gardens have to generate powers on their own arrangements), child welfare, maternity benefit, medical care and social welfare activities are the responsibilities of the management. These responsibilities have been bestowed on them by the Government and delegation of these responsibilities does not absolve the Government of its obligations to the tea garden people, who are very much a part of the people of this country.

It is a matter of regret that even 30 years after Independence the basic amenities of life including medical care are being denied to the tea garden workers and persons responsible for denying the justified benefits and thereby deliberately violating the provisions of the Act have been allowed to go scot free. During the last 4 years two delegations consisting of Members of the Parliament were sent by the Government to visit different tea gardens particularly in Assam and North Bengal. They were expected to give a detailed report of their on-the-spot survey. Reports of these delegations, so far as we know, are yet to see the light of the day for reasons best known to the Government.

The Indian Medical Association feels that this sordid state of affairs should be changed and proper arrangement for catering better medical care and medical benefit to tea garden employees, who earn valuable exchange for the country at the cost of their health, should be made without further delay. It further urges the Government to assess the working of the Plantation Labour Act and amend the Act by removing the ambiguities and vagueness of the provisions which stand in the way of workers receiving better medical care, and which also prevent doctors from rendering effective medical service to the former. IMA feels that improvement of the working conditions of the doctors and the para-medical staff as well as the conditions of indoor and outdoor dispensaries in tea gardens and the setting up of central and group hospitals need immediate attention. The Government particularly the Labour Department both at the Central and the State level should wake up and do justice both to this neglected section of population and the medical men who have chosen to serve in the most backward areas denying themselves the usual amenities of civilised life and the opportunity of spinning money at ease.

Plan and Policy

Planning is clearly necessary in order that the people's health aspirations may be realised. During the past few years, a national approach to health planning, known as country health programming (CHP), has been adopted by a number of countries. However, a clear statement and understanding of health policy (through analysis or review) are prerequisites for success in CHP, because all health planning must necessarily lie within the framework of the government's health policy Further, policy decisions are needed in the planning process and in defining its tasks and limits. Therefore, planners who ignore policy only endanger the good results of their endeavours.

On the other hand, the planning process has various possible feedback effects on policy For example :

**It requires explicit policy statements, thus bringing certain subjects to the political arena.*

**It should reflect the rationale of policies, show how they can be implemented, and show their financial and other implications.*

**It provides the policy-makers with instruments for dialogue, co-ordination, attraction of resources, and continuity of action.*

Its impact on the national situation should influence future policy-making.*—*C. Montoya-Aguilar,* WHO Chronicle, **31 : 441, 1977.

JOURNAL OF THE
INDIAN MEDICAL ASSOCIATION

CALCUTTA, AUGUST 1, 1978

Need for a National Health Policy

It is unfortunate that during the 30 years since Independence India could not have a National Health Policy. Implementation of any programme without a rational and comprehensive policy is self-defeating, specially, when it concerns a serious and sensitive matter like health care of the people.

In our country, after Independence the expectation of common men regarding health care became understandably high. But in the perspective of the ruling section of our country this problem, which literally concerns people's life and death, did not receive the proper importance and priority.

Numerous Commissions and Committees have been instituted to explore the ways and means for providing health care for all, particularly the poorer sections of our countrymen. Their recommendations have either been partly implemented or not implemented at all. As a result, the health care system prevailing in our country, is far below the minimum expectations of the people. An introspection will reveal that the main constraint lies not only in the thought process of the politicians, but also in that of the people at large. Even the technocrats, responsible for delivering the health care are also suffering from indecision about the nature and system of health care to be provided for the people. The confusion and contradiction will be apparent from the two contradictory reports published by two government agencies namely, the Institute of Economic Growth and the National Institute of Health and Family Planning regarding people's acceptance and the efficacy of the Community Health Workers Scheme. The first survey has characterised the scheme as frustrating whereas the second one found it to be very effective and much liked by the people. The reason for such a wide difference of opinion is not difficult to understand.

Health care has so long been considered as a personal matter. Its consumer was the individual. A medical practitioner of any discipline was supposed to cater to the health need of the consumer in compliance with his liking and his capacity to pay for it.

There was another trend of thinking amongst the philanthrophists and social workers. It was the spirit of altruism—a good samaritan feeling out of which one likes to see others happy and healthy. As a result there was attempt at providing some health care for the backward section of the people as a matter of charity. This altruistic attitude is not only prevailing in our country, but is also evident in many developed countries. It is only a radical change in the socio-political structure of certain countries like USSR, China, etc., which has drawn the attention of the people to the demand that health care should be a fundamental right of the people as much as their right to have food, shelter and education for their bare existence. This is a new trend in contrast to the spirit of charity and philanthropism. It comes as a matter of right of the people. This change in the concept of health care system has made society the consumer of health care in place of an individual. This problem is deepening in the developed countries also, but it is not so acute there, as it is in the developing countries. This is so because the minimum standard of living of the lowest section of the people in these affluent countries is good to the extent that it can make the common toilers survive and serve in the interest of the ruling section. Naturally the ruling section in those countries can keep the people satisfied, provide their basic minimum requirements of living and make them work.

That comprehensive health care for every citizen is possible, could be demonstrated only in the socialist countries because they have equated the health of the people with production. Those countries have proved that unless health is integrated with production, thereby making it an integral part of national development, the real objective of building a healthy nation will not be possible.

The major problem of colonial countries which have acquired Independence is that they have to bear the legacy of their previous foreign rulers. The type of social order including health service system introduced by those rulers was incongenial to the countries concerned and imposed upon the people from above. These countries are also faced with another problem, namely, whether they should maximise production first imitating the developed countries—the homelands of their past rulers, or should start afresh with a new idea of attaching primary importance to their manpower and use this huge manpower as an alternative to modern mechanisation and achieve maximisation of production in industry and agriculture. If the later is accepted, as has been done by the socialist countries, the health care for all toilers has to get top priority.

Another problem being faced by the developing colonial countries is the emotional involvement with their own indigenous systems of medicine, which could not for historical reasons develop effectively and scientifically in the course of few hundreds of years, but still meet at least some necessities of the people, for health care. This indigenous system, as it stands today, is not capable of competing with the modern scientific medicine, but remains as the carcass of a giant, who had once a magnificent might but now has become only a monument of pre-historic past. The emotional involvement with the past legacy is blurring the vision of the authorities and the people as well and standing in the way of its youthful resurrection.

The present system of general education and medical education is ineptly inherited from our foreign rulers as it has been the case with our health care system. Our traditional system of education is suffocated for want of fresh air and is carrying on a miserable existence because it has lost to a great extent its practical credibility for the students.

The question of socio-political character of the country its relation with the production and the producer and the education itself have to be considered, if one has to deal with the health care system for the people, because they are intimately related to one another.

The reason of failure to solve this vital problem in the past and even after acquiring political Independence is that the problem has never been considered in its totality. We know that the problem is a gigantic one. We are also aware that a solution cannot be outlined as a thumb rule and with mathematical precision. What IMA wants to impress upon the administrators, political echelons, people and even the members of its own profession is that it is time to take cognisance of the prevailing real state of affairs in our country, to understand the factors hindering planning and implementation of total health care service for the people. So long the nature and system of health care have been planned and implemented with the help of the experience and expertise of a few experts and the political zeal of the policy makers. People were never taken into confidence. Expenditure on health care was never considered as an investment. It was never integrated with production and treated as a part of the total national development. The developing countries like Cuba, Vietnam and China has shown us the path as to how health care for people can be achieved by involving people at every stage of health planning and its execution, specially when the nation is saddled with multifaceted problems and development is handicapped by grave economic constraints. That is why we feel that people have to be taken into confidence. They have to be apprised of the real position of health care system and involved in the health protection movement. Health care so long was limited to the curative side only and intended to cater to the felt needs of the people. But it is generally accepted today that preventive measures are more important in building up a healthy nation. Prevention of diseases is directly dependent not on the budgetary allocation for health care, on the supply of technical personnel or even on the supply and availability of medicine but upon the general living standard, nutrition, health consciousness and health education. This points to the basic fact about the need for re-organising social, economic and political structure of the society.

IMA understands that in the present socio-economic structure the total health care of the people is not possible. What it wants to emphasise and endeavours to bring home to the health planners is the need for putting the health care planning in the right direction so as to maximise its benefit even under the existing system. The IMA is confident that with the existing resources much better result can be achieved if the authorities spell out their mind and intention about the nature, method and extent of health care they intend to provide for the people and if they make the people aware of the resources and the constraints which are limiting their efforts. In other words, IMA wants that the leaders of the nation take the people and the medical profession into confidence without blaming one section or the other for the lacunae and the failures of the health care delivery system. The IMA also agrees to participate and share the responsibilities of performing its own part as an organisation of the technically qualified medical men or medical technocrats who are basically responsible for delivering the health care. This is why the IMA is demanding declaration of a clear-cut National Health Policy from the Government and urging the Government to initiate a national discussion on this very important aspect of life involving all the people, the politicians and the medical profession. The IMA has outlined a policy but it harbours no such prejudice as to call it sacrosanct and it is ready to amend that policy on logical grounds. There is no reason why a rational policy should not evolve out of this discussion that will be able to take care of the health of every section of our countrymen. Let us put in our efforts with all determination to invest our future generation with health and happiness.

GOURI PADA DUTTA

SUPPLEMENT

Vol. 71, No. 3 : Calcutta : August 1, 1978

Association Notes

IMA Leaders Urge Members To Observe 'National Health Policy' Demands Day on 1st September, 1978

The following messages have been received from the leaders of IMA calling upon the members of IMA all over the country to put in all-out efforts to make the observance of 'National Health Policy' Demands Day on 1st September, 1978, a complete success:

Dear Members,

I welcome the decision of the IMA to observe the National Health Policy Demands Day.

Let the Day be an occasion to create a massive public opinion in the country and induce the Government to enunciate its health policy to meet the total health care of the people.

S. Samaddar,
Patna *Past President, IMA*

* * * * *

Dear Members,

I must convey my heartiest congratulations to the members of the Action Committee and the President and members of the Indian Medical Association for organising the Demands Day for a 'National Health Policy'.

The Indian Medical Association is the national custodian of the scientific and modern medicine and as spokesman of the profession it owes this to the nation to bring to the serious notice of the Central and State Governments and also the masses and all strata of the society the deplorable state of the health care system existing today. Ideally the health care system should provide complete coverage and it should give the public access to all kinds of health care The "Primary Care" approach must be given priority at all levels. We must immediately decide what is essential in keeping with the social expectations and economic capacity of the people The present Government at the Centre and the State Governments have not yet spelt out in details their "Total Health Care Policy" and they seem to be indecisive in the matter of utilisation of the resources and qualified medical manpower under a suitable national health scheme. Sorting out and grading of ordinary and specialised medical care is a very difficult and demanding task and does not admit of easy or early solution. Reality and minimum needs should never be lost sight of. The rural population in all areas can easily be covered by a well planned mobile medical service linked with the medical centres and district hospitals. The Indian Medical Association and the medical profession of India would be happy to co-operate in such plans and their implementations.

The IMA after patiently and painfully waiting for 30 years since Independence is fully justified in requesting the Government to chalk out a clearly determined and decisive health policy in the light of our national needs. It is essential that the Government spells out its health policy in all details and tells the people of the nature and extent of health care it desires to render to them and the constraints that there are in attaining this objective. The demand raised by IMA, we hope, will succeed in bringing home to the Central and State Governments the urgency, importance and benefits of well planned and organised medical care based on a comprehensive national health policy.

The nation has lost a lot due to lack of a well defined and clear-cut 'National Health Policy'. We feel that the time has now come to tell the Government how fruitfully and effectively we can utilise our rare heritage and also fully utilise the advances in modern medical sciences for health and welfare of our countrymen. This is the inherent right of free citizens in a democracy and in our welfare State.

I hope our efforts on this Day will be effective to the extent that they would pave the way for initiating a distinct and clear thinking on our 'National Health Policy' for today and tomorrow. I am confident that the voice raised by us on this Day will help to focus the attention of all concerned to formulate a definite policy for improving the health coverage, to draw up a blue-print for the 'National Health Policy' determining the principles, practice and implementation thereof. I am sure that all members of IMA, the profession and the public will fully co-operate in observing this Day, so that the nation may ultimately have a National Health Policy which would bring about an era of better medical care, health and happiness

I hope the Demands Day will receive a great national welcome and appreciation and will attain a grand success owing to the determination of the IMA and the citizens of India to secure their birth-right for better health through a well planned and well defined National Health Policy.

Shantilal C. Sheth,
Past President, IMA,
Bombay *Past President, MCI*

* * * * *

Dear Colleagues,

I congratulate the Action Committee on their decision to observe 1st September 1978 as Demands Day for 'National Health Policy'.

Thirty long years have passed since we won Independence and yet our Government has not been able to spell out its National Health Policy.

The medical profession in general and the IMA in particular have organised several conferences, workshop seminars and discussions both at the Central and the State levels in close co-operation with health administrators, medical educationists and experts and forwarded to the authorities concerned their recommendations with volumes of literature on the subjects discussed. But all this seems to have gone to waste paper basket and our cries have fallen to deaf ears. It is time to rouse the consciousness of the massess and acquaint them with the correct picture of Health Care Programme in the country. The IMA with its network of branches all over the country will, I am sure, convey the message to the remotest corner of the country and educate the people about their right to get the best medical aid for themselves under a proper National Health Policy.

P. R. Trivedi,
Ahmedabad *Past President, IMA*

* * * * *

Dear Members,

I have much pleasure to learn that the Indian Medical Association has decided to observe an All-India Day on 1st September, 1978 as 'National Health Policy' Demands Day and I warmly welcome this decision of our national organisation.

I am confident that the medical profession will not only respond wholeheartedly to the call for observing the Day but will also do their best to carry this message of IMA to the massess to enlist popular support for this vital demand in their own interest and in the interest of the entire nation. There are no two opinions on that our National Government should declare a National Health Policy, because without it national health care delivery system can never attain its objective of reaching all people.

A determined Health Policy on national level will also rouse the interest of the medical profession and the people at large and ensure their participation in the reconstruction of national health. After a proper National Health Policy is drawn up, Government and other authorities concerned are expected to leave the negative path of passing on the responsibility for all ills of health care delivery system to the doctors only and instead go ahead on positive lines for creating a broad-based health movement with participation of all concerned to fulfil the objective of building up a healthy nation.

J. Majumdar,
Calcutta *Past President, IMA*

* * * * *

Dear Members,

It is the constitutional privilege and duty of any responsible Government to provide good and adequate health-care service to its people.

With the dawn of Independence our countrymen became aware of the advances in Science and Techology and rightly began to aspire for the modern facilities of life including those of health-care.

All these years the Government made lofty promises in this direction but were not able to fulfil them. Their attempts became sporadic and inadequate due mainly to the reason that planning with regard to health lacked an objective outlook and was lopsided. There has been a rapid increase in the number of medical men and women trained in the modern scientific system of medicine, but it has not been matched with creation of facilities for their utilisation. Instead, substandard treatment in the name of rural health care is being inflicted on the community through the ill-trained bands of Community Health Workers with the inevitable prospect of increased morbidity and mortality. The services of untrained quacks also are being eulogised on the plea of encouragement of indigenous systems of medicine.

We, who belong to the modern scientific system of medicine, are being much maligned and misrepresented. Not to speak of rowdies, sometimes even the law-makers are taking the law into their hands and instituting ill-motivated enquiries, or inflicting insults and abuses and even personal assaults on qualified medical men, much of whose time is taken up often in treating the most trifling ailments of these VIPs. We have repeatedly told the Government of the need to envisage the nationalisation of health services in a phased manner as the ultimate solution for health care problems of our country.

The time has come for us to apprise the public about our stand and impress on them our concern for the impending dangers from the present health policy of the Government The time has come for us to demand of the Government that it should declare its comprehensive health policy.

The Association has declared the 1st of September 1978 as the Demands Day for National Health Policy. Our Action Committee's programme is being communicated to all local branches. I expect every member of the Association to observe the Day along with his colleagues and voice the demand for a National Health Policy which will ensure health care for all people and enable the doctors qualified in modern scientific system of medicine to fulfil their obligations to the community and the country.

J. V. R. Sarma,
Hyderabad ***President, IMA***

Dear Colleagues,

Our motherland was freed from the foreign rule 31 years ago and we have been celebrating 15th August every year with the solemnity and sense of national pride The nation has definitely marched ahead in different fields which have contributed to the raising of the standard of life. We have been through five Five-Year Plans but planning in the matter of health care delivery, on which depends the well-being of the population and which in fact is responsible for greater production, has been far from satisfactory. Our planners have not yet been able to spell out as to what type of health care they ultimately envisage for our people.

So far, the emphasis had been on strengthening the PHCs manned by medical practitioners trained and qualified in 106 Medical College spread all over the country and also on augmenting the production and availability of drugs to meet the growing needs. But suddenly during the last few years thoughts seem to have gone astray and promotion of systems of medicine, which no longer exist even in the countries where they originated, has been thought of and policy initiated to implement them. Let us not be misled by the idea that these systems are cheaper and better suited for our people. They look cheap because of easy availability of herbal medicines locally. But when the expenses involved in standardising the medicines in laboratories and manufacturing them in a clean and proper manner and payment of identical grades of salary as demanded by the practitioners of these systems are taken into account, these systems work out to be costlier than the modern system, which is rather coming within the reach of the average citizen. Moreover while Family Planning is regarded as an integral part of Health and Family Welfare, none of these systems hold any promise in this direction till today. Then why do we not utilise the expertise and the talent available in modern medicine, which alone can meet the challenge of population explosion by educating people in the knowledge and use of contraceptive measures and making available the surgical procedures accepted as the most effective ones for curbing the birth rate

Time and again the members of the profession (i.e., doctors trained and qualified under the Medical Council of India Act) have been blamed for paucity or non-availability of doctors in the rural areas. Since last year Government has embarked on a scheme for providing health care to the villagers through a band of health auxiliaries trained only for a few weeks in various systems. I fail to understand why this hotchpotch is being passed on to poor villagers in the name of health care. Are they inferior citizens ? If not, why not provide similar facilities to all citizens of Mother India ? We profess a classless society and we practise division between urban, semi-urban and rural settings.

Let us all rise as one man to demand from our National Government that it should declare its Health Policy clearly stating therein what it proposes to give to its citizens under the national system of delivery of health care. Failure on the part of the Government to do this in time has created chaos, and the profession, which owes a duty to the people, cannot remain an idle spectator of the same.

We demand the declaration of National Health Policy and to this end I appeal to all members of the Indian Medical Association, wherever they be to observe on 1st September 1978 the 'National Health Policy' Demands Day and hold meetings to apprise the people of the IMA's standpoint. The State Branches are requested to hold public debates to highlight the matter and ascertain the views of different sections. We hope with your active co-operation the Association will be able to focus the attention of the people and the Government on the genuineness of our concern for the health of our countrymen.

M. G. Garg,

New Delhi *Hony. General Secretary, IMA*

* *

The demand for a National Health Policy on which our Association has issued a call to all members of the profession may sound an unusual one to those who are at the helm of affairs of the country. There is nothing unusual about this demand. The IMA leaders have been urging on the national leaders and makers of the the 5-year plans for the last 3 decades of Independence that a comprehensive health care policy should be framed in collaboration with the national body of qualified medical men- the IMA and that the medical profession should be given due opportunity to serve their motherland in the sphere of people's health care. Without such a policy, IMA felt, much of the efforts of the Government for catering to the health needs of the people was going waste and the poorer and backward sections of the people, particularly those who live in the villages of this vast country, were being deprived of the minimum medical care which they could legitimately expect from a National Government. IMA consistently tried to impress on the Government that their indecision regarding the system of medicine on which the country should depend in the main has not only caused a confusion in the national health care delivery system so long prevalent in the country, but has also affected the expansion of scientific medical care in the rural areas. The pleas like reluctance of qualified doctors to join rural services or dearth of trained para-medical hands, which are often cited as reasons for non-availability of scientific health care in the villages would have proved false ones had there been a full-fledged National Health Policy with time-bound targets of coverage. Members of the medical profession of the country would heartily welcome declaration of such a policy by the Government and apportionment of their own responsibilities in implementing such a policy in the interest of millions of people who look to them for medical aid and relief and hold them responsible or blame them for the failure to get this relief everywhere and at all times. I believe this call for observance of 'National Health Policy' Demands Day would strengthen the cause of people's health care and help to put an end to the uncertainty regarding the direction in which the national health care delivery system should be conducted.

P. K. Dutta,

Dhanbad. *Chairman*, Action Committee, IMA

Celebration of Golden Jubilee Year (1928-1978) of IMA

Dr. J. J. Sood, Hony. Joint Secretary, IMA Headquarters, has issued the following circular to the Hony. Secretaries of all State/Territorial Branches of IMA:

On the advice of the President, IMA, the following committees have been formed for undertaking various responsibilities at the IMA Headquarters in regard to Golden Jubilee Celebrations:

1. SOUVENIR COMMITTEE

(i) Dr. M. G. Garg, Hony. General Secretary, IMA—*Chairman*, (ii) Dr. P. K. Banerjee, (iii) Dr. P. N. Anand, (iv) Dr. J. J. Sood, Hony. Joint Secretary, IMA—*Convener*.

2. PROGRAMME COMMITTEE

(i) Dr. M. G. Garg, Hony. General Secretary, IMA --*Chairman*, (ii) Dr. L. D. Malhotra, (iii) Dr. N. K. Khosla, (iv) Dr. A. R. Sethi—*Convener*.

3. ENTERTAINMENT COMMITTEE

(i) Dr. M. G. Garg, Hony. General Secretary, IMA —*Chairman*, (ii) Dr. O. P. Kapur. (iii) Dr. P. K. Banerjee. (iv) Dr. (Mrs.) Pushpa Sethi. (v) Dr. S. N. Gupta, Hony. Asstt. Secretary, IMA—*Convener*.

More members will be co-opted to these Committees, by the Chairmen as and when necessary.

Any correspondence with regard to the Golden Jubilee Celebrations may be made with the Conveners of these committees henceforth, to facilitate efficient and proper action. The suggestions, the progress and reports of celebrations at State level, may also be forwarded to the IMA Headquarters without delay.

Involvement of Private Medical Practitioners in National Family Welfare Programme

In connection with the above a D.O letter has been issued by the Additional Secretary and Commissioner (FW), Government of India, Ministry of Health and Family Welfare, New Delhi, to all Regional Directors (FW & MCH). In course of a circular addressed to the Hony. Secretaries of all State/Territorial Branches of IMA. Dr. M. G. Garg, Hony. General Secretary, has drawn their attention to the contents of the D.O. letter (reproduced below) and requested them to contact the health authorities in their respective area:

Mrs. Serla Grewal, IAS,
Additional Secretary &
Commissioner, (FW)

D.O. No. R. 16016/14/78-C & G (OS)
Government of India
Ministry of Health & Family Welfare
(Dept. of Family Welfare)
New Delhi, Dated 19-6-1978

Dear Sir,

Recently I attended a workshop organised by the Indian Medical Association where ways and means involving the private medical practitioners was discussed in detail. While recommendations of the workshop are coming to us and we shall circulate them to all the State Governments to take necessary action in consultation with the State IMA Branches, one general point emerged was that private medical practitioners who came to this seminar expressed their keenness to help in family welfare programme, especially in distribution of conventional contraceptives, but they complained that the State health authorities do not assist them in this work and nor are their requests acceded to in the shape of their getting these supplies, etc.

As you are aware, we have to involve all voluntary organisations, particularly private medical practitioners provided they render account for distribution of conventional contraceptives, like condoms, loops etc. to the State health authorities. You may like to call a meeting of President of IMA of your State and have a dialogue with him and find out what are the bottlenecks. Please locate the private medical practitioners who are willing to assist us in the implementation of family welfare programme.

I shall be grateful if you kindly let me have your comments after discussing the matter with the State IMA authorities.

Yours sincerely

Sd/- Serla Grewal

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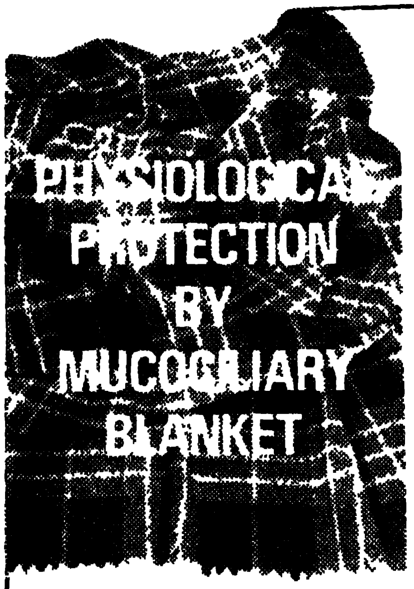

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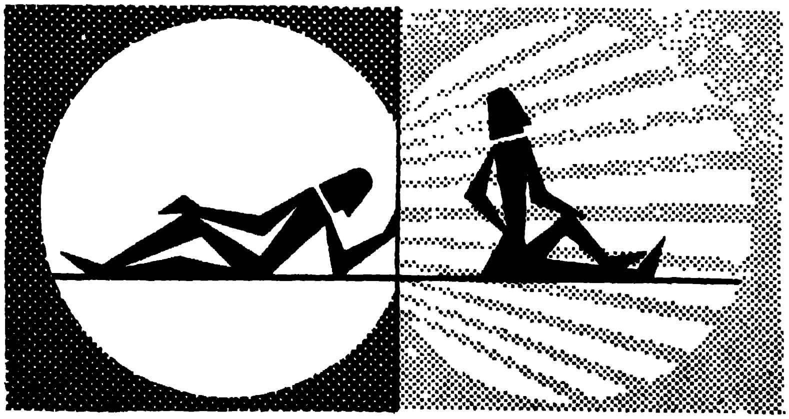

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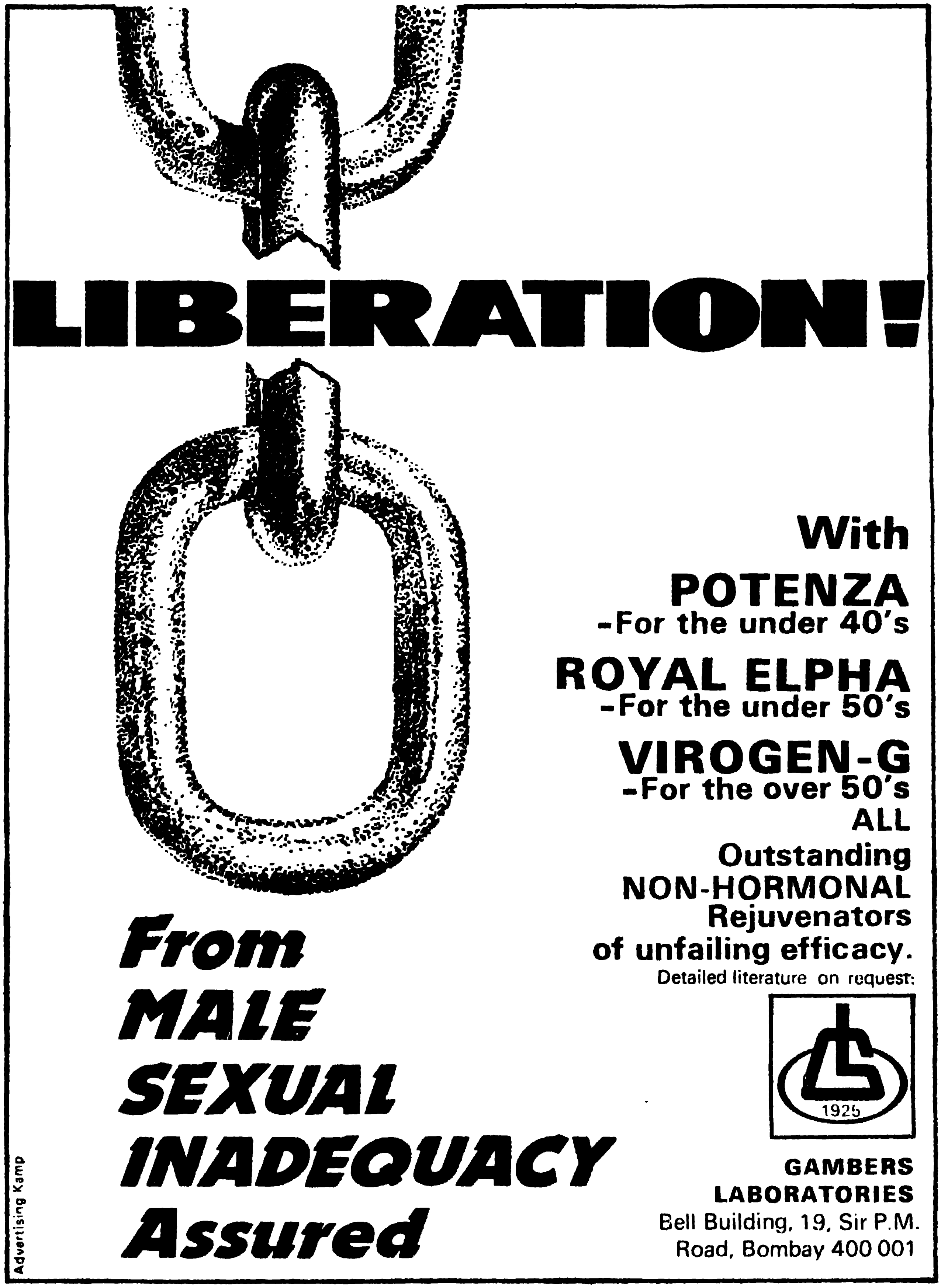

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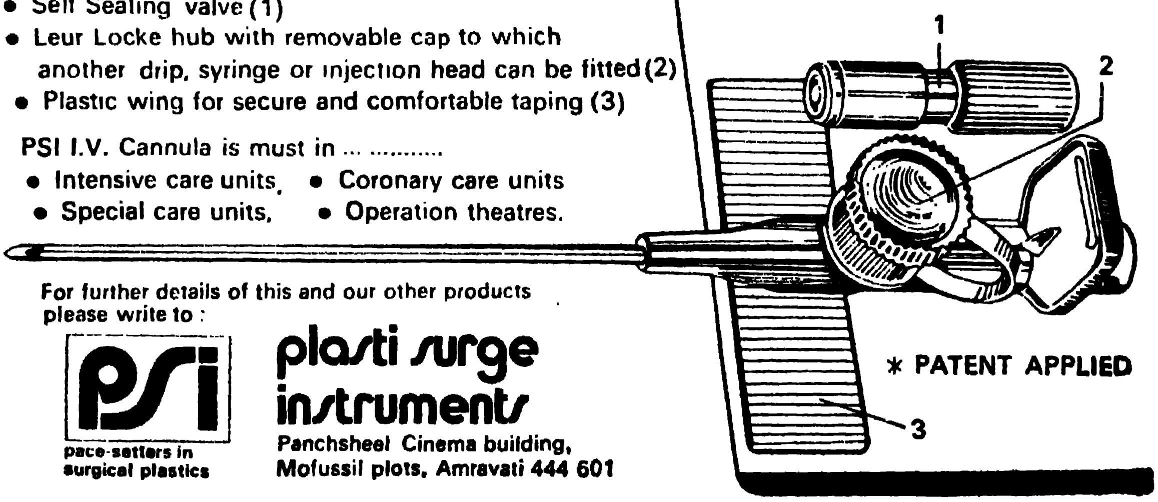

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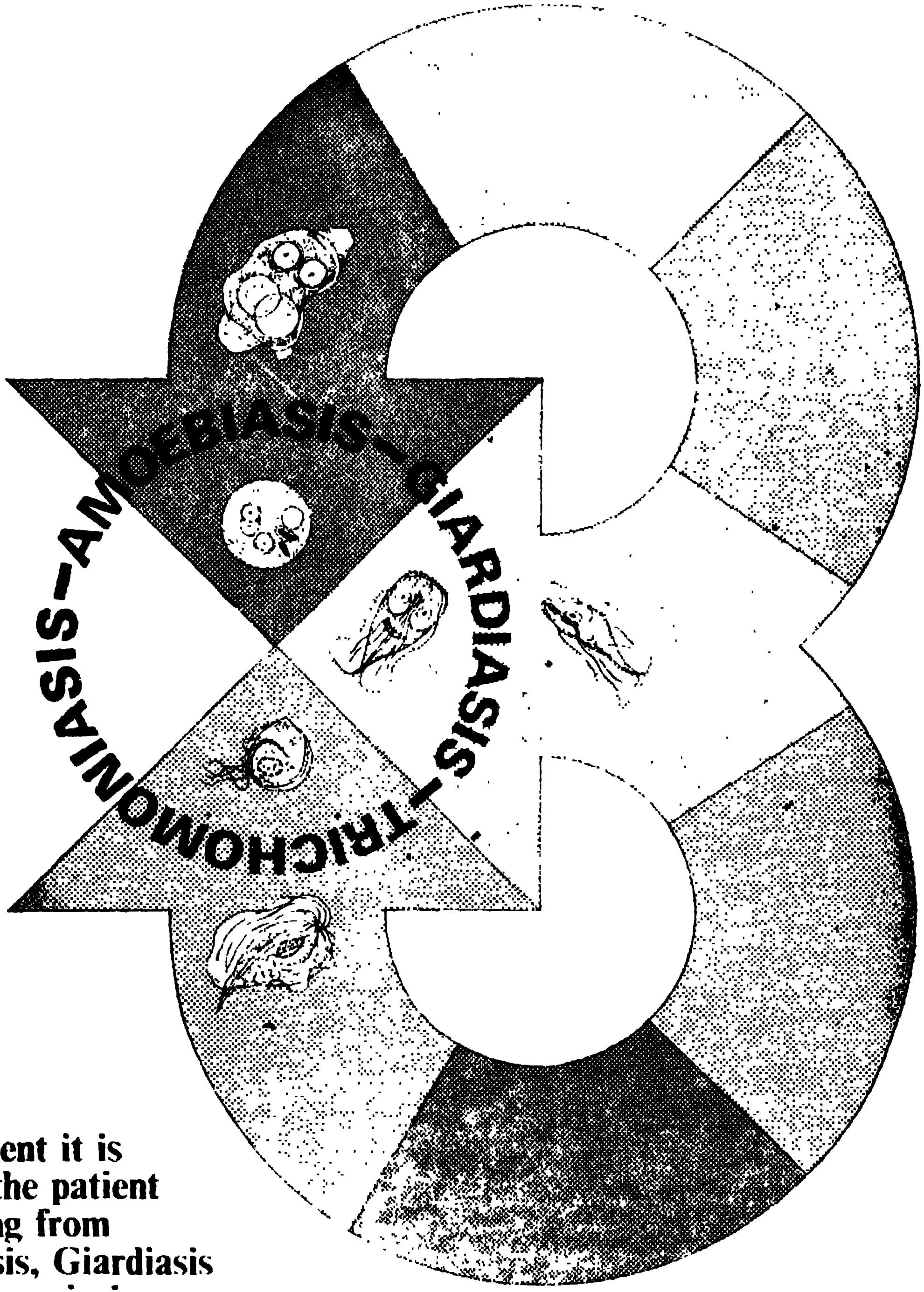

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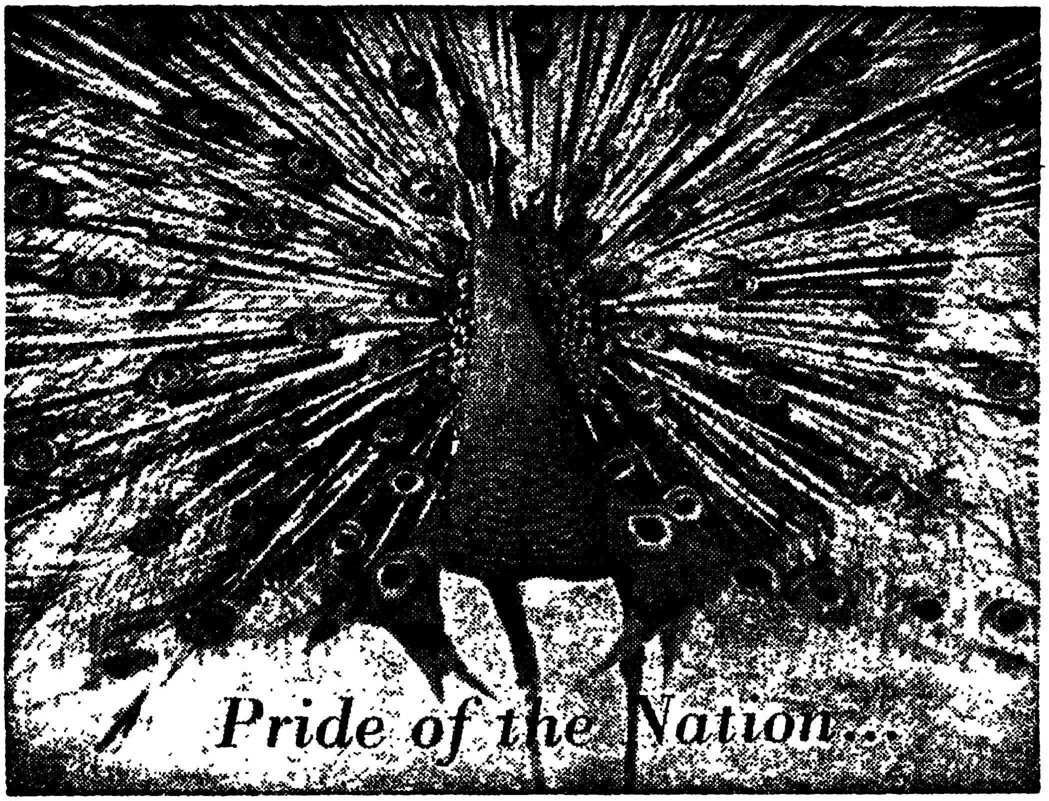

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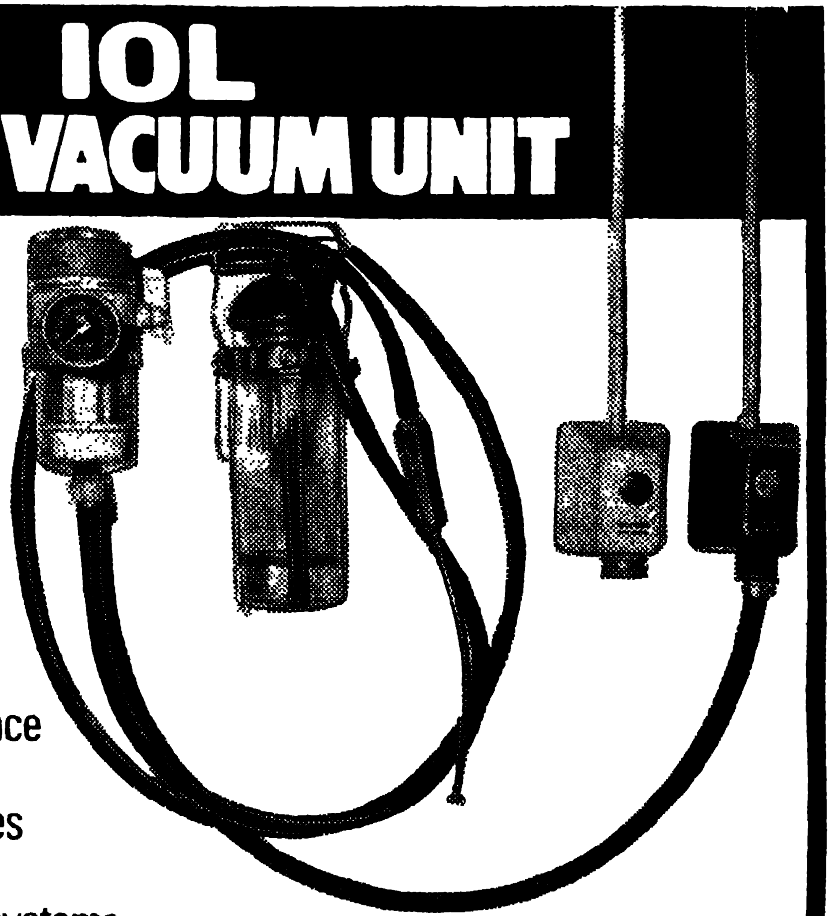

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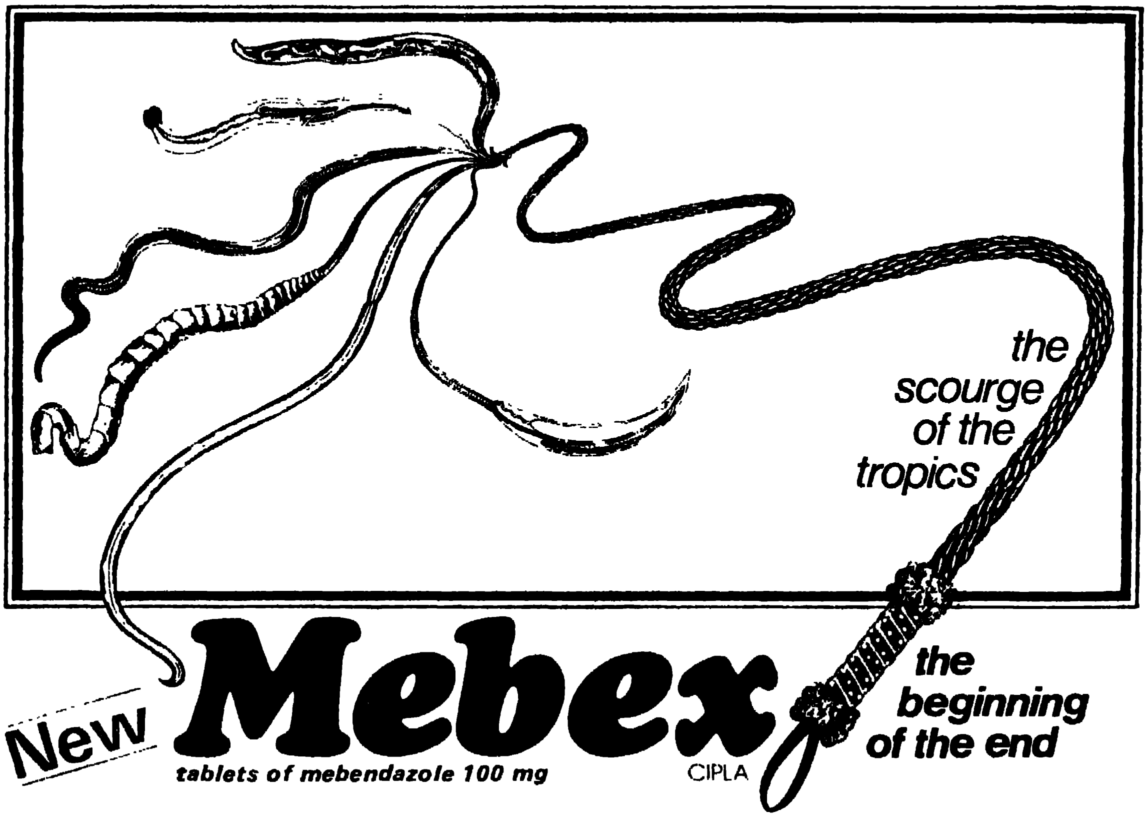

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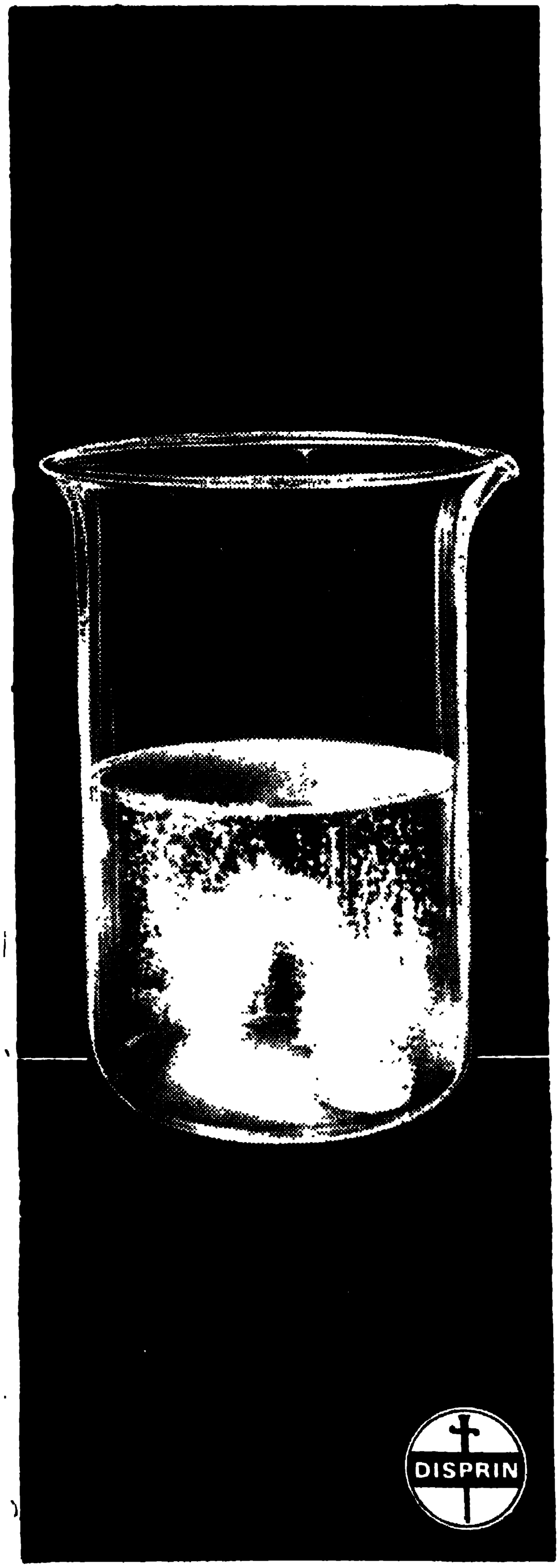

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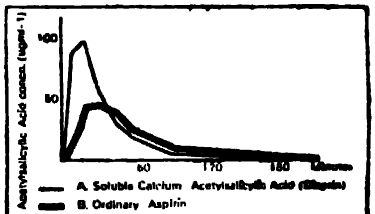

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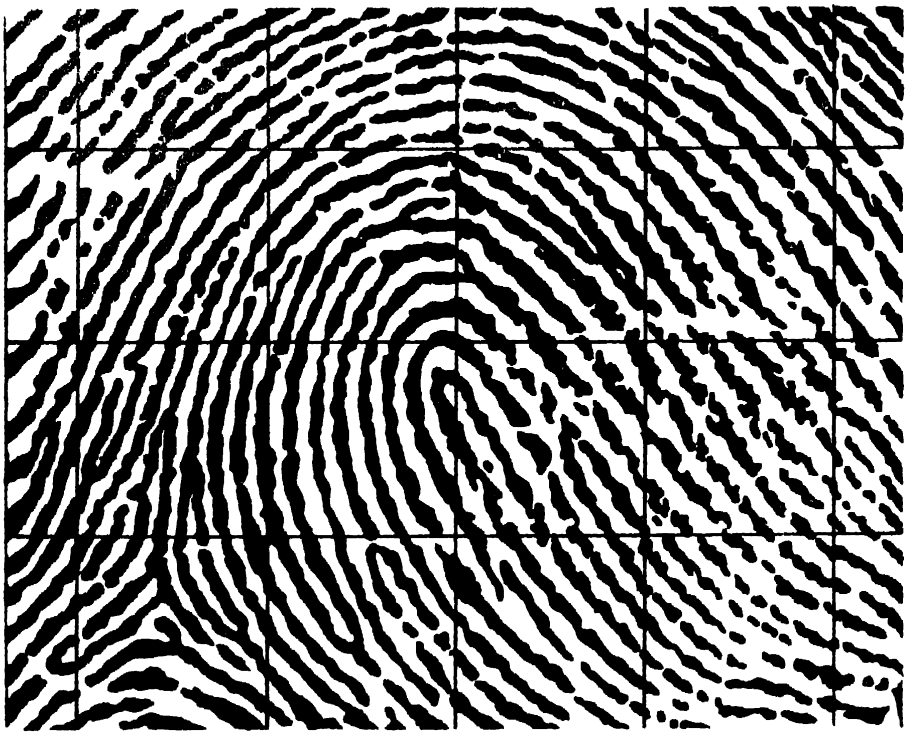

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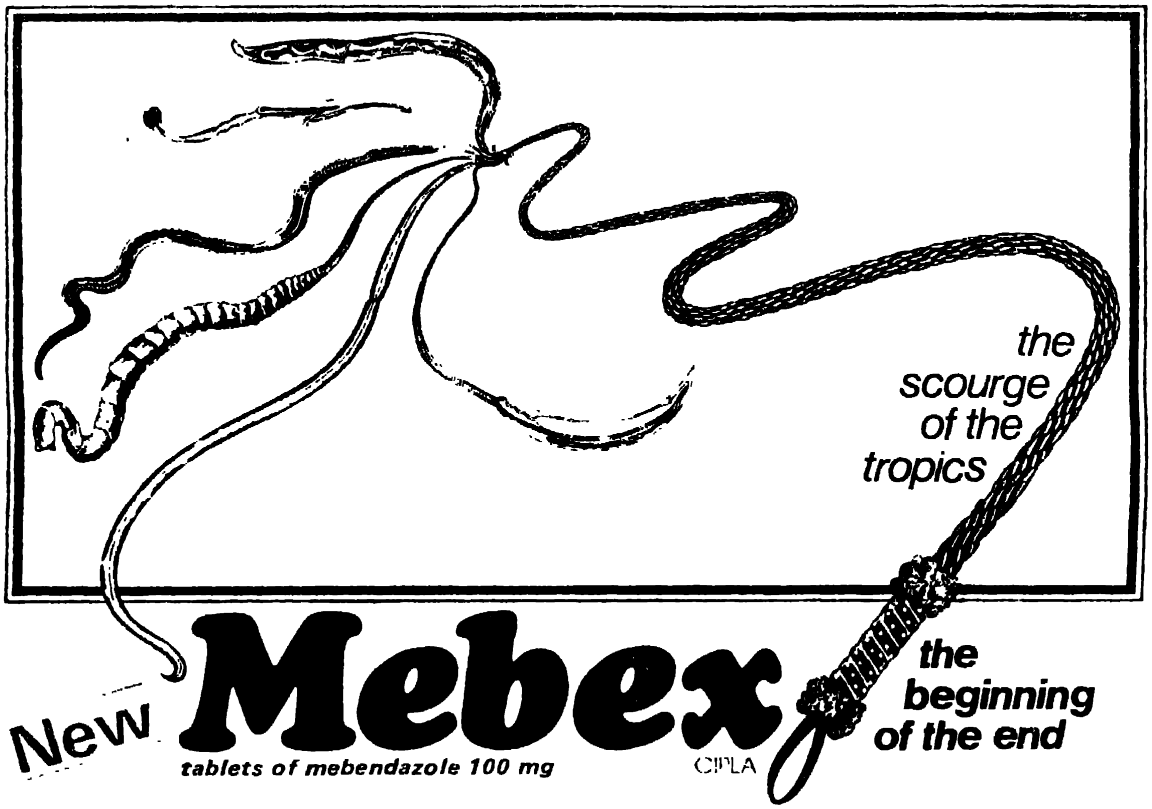
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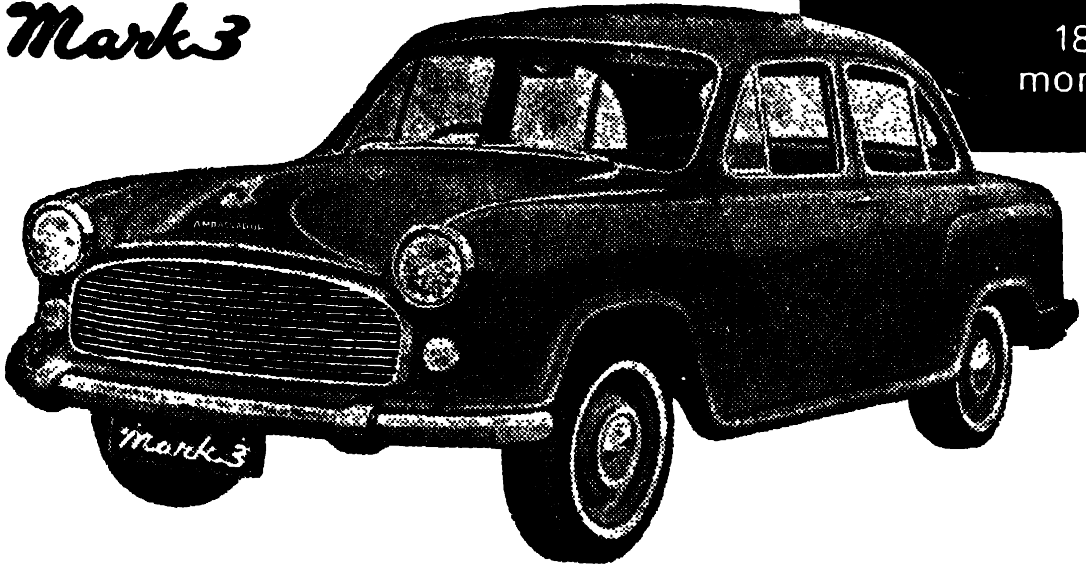

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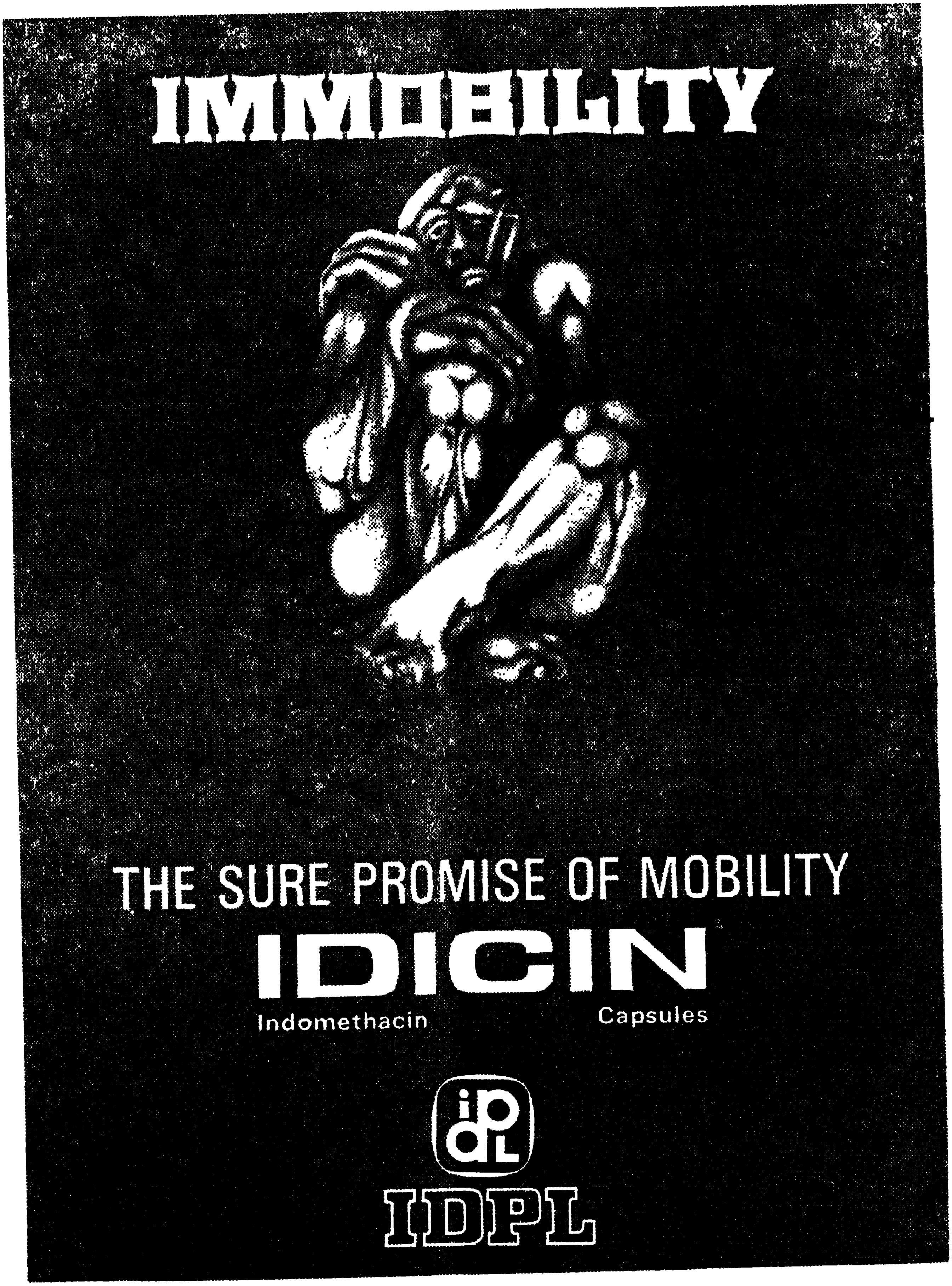

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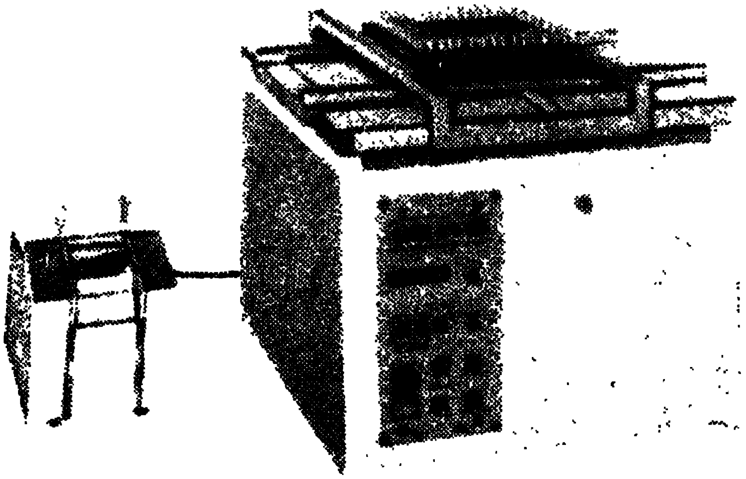

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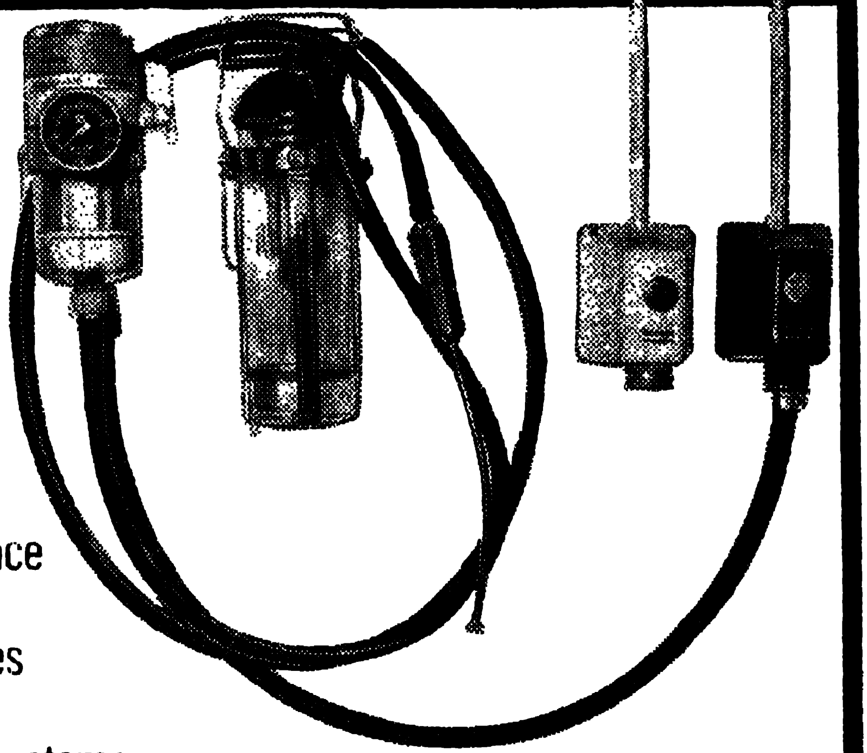

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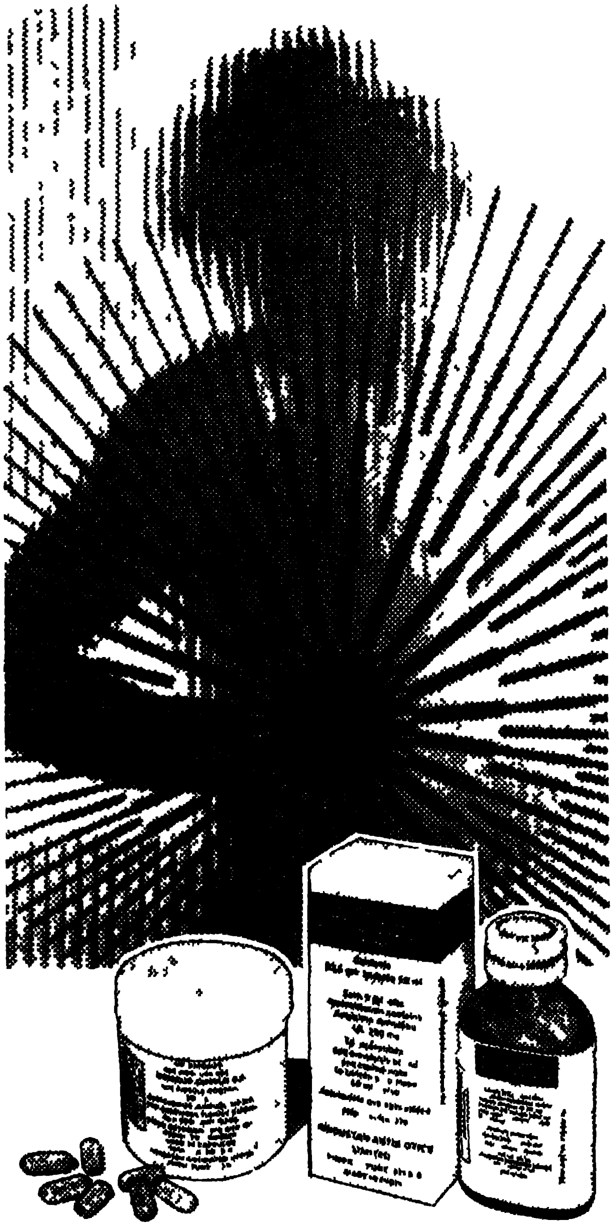

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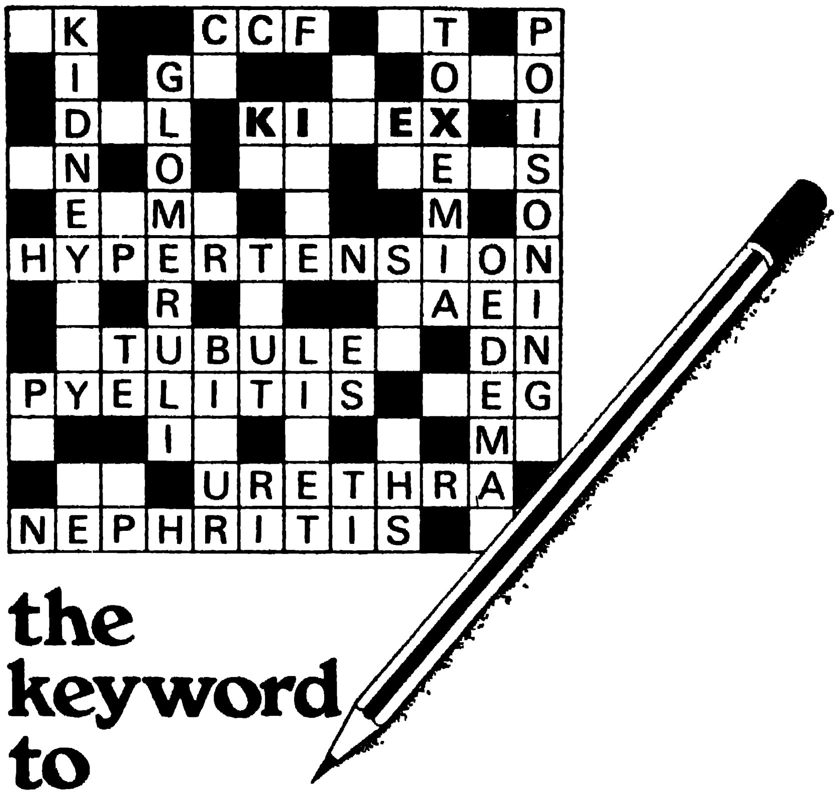

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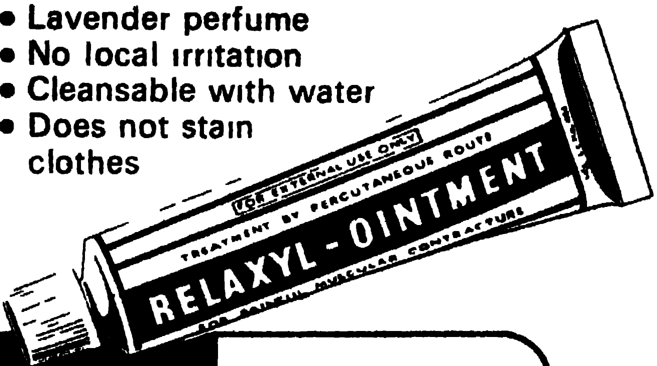
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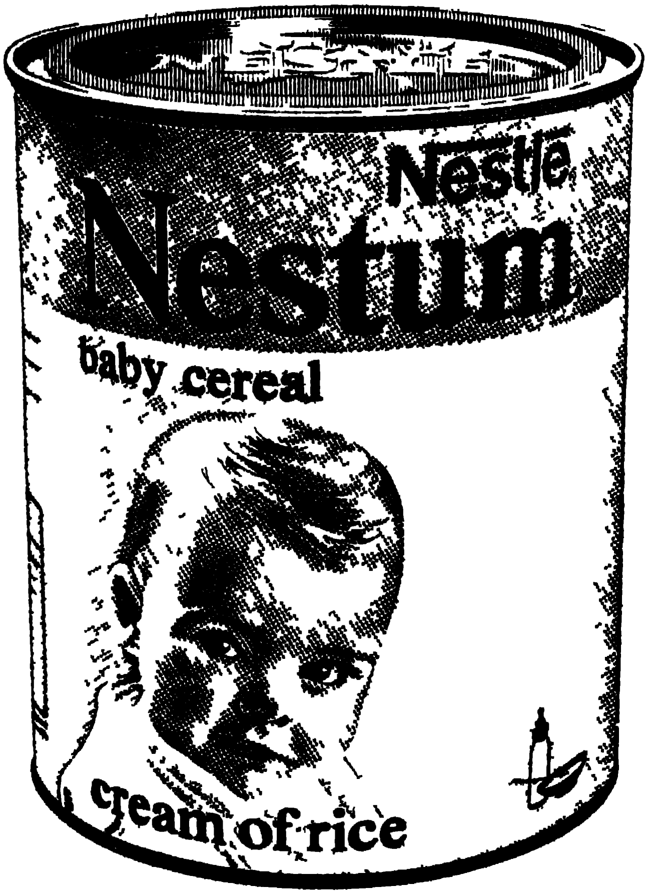

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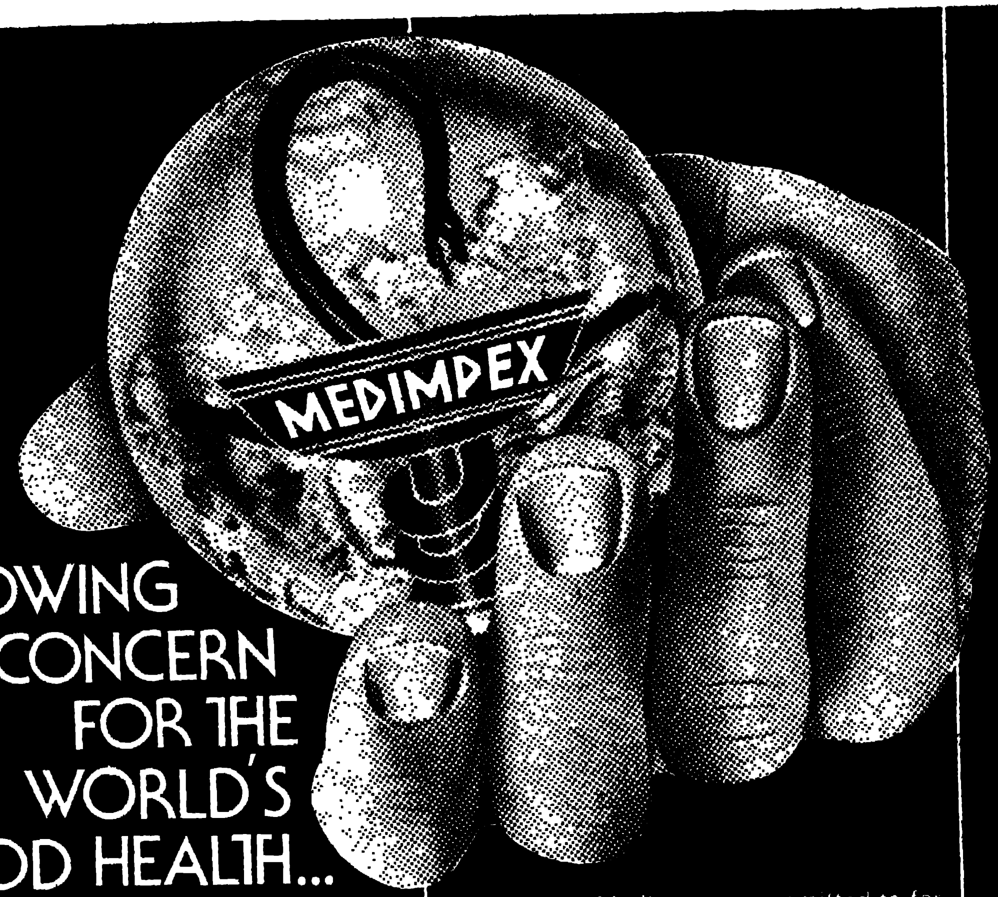

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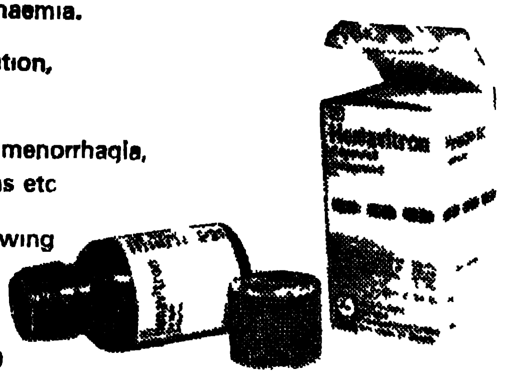

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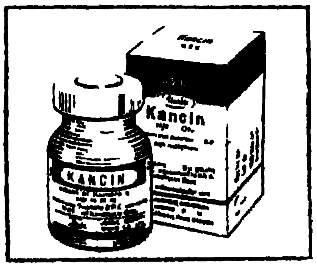

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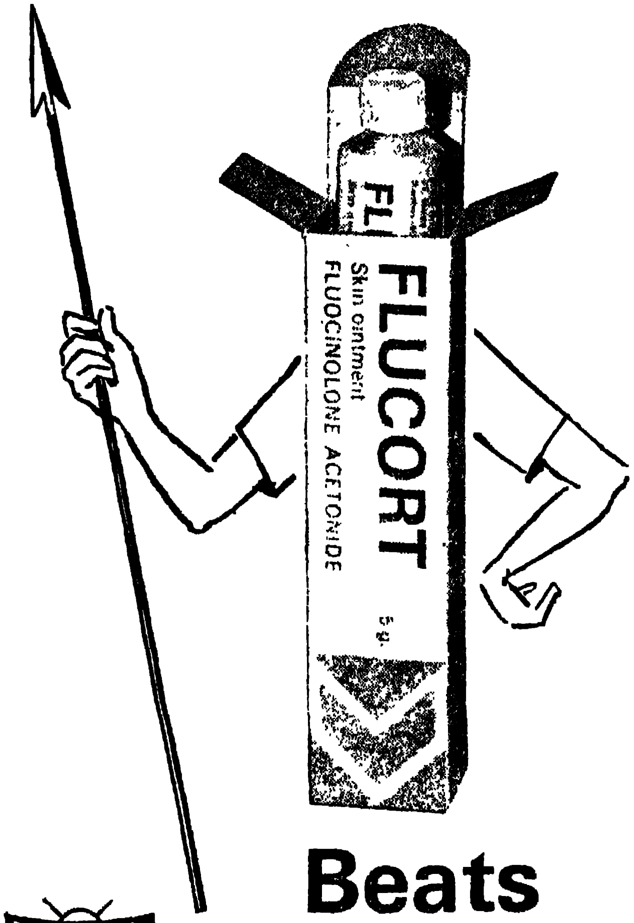

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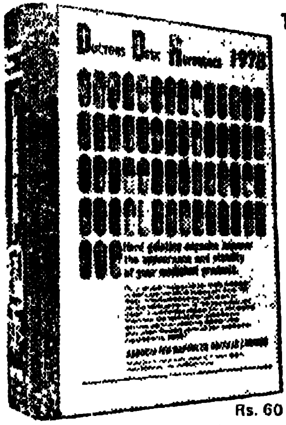

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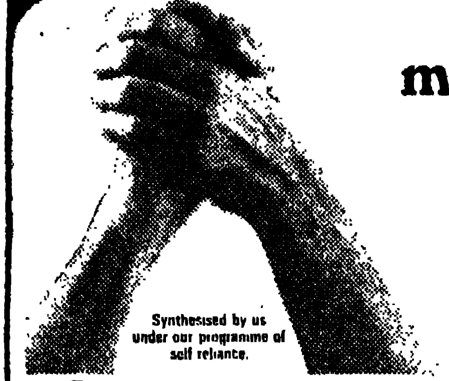

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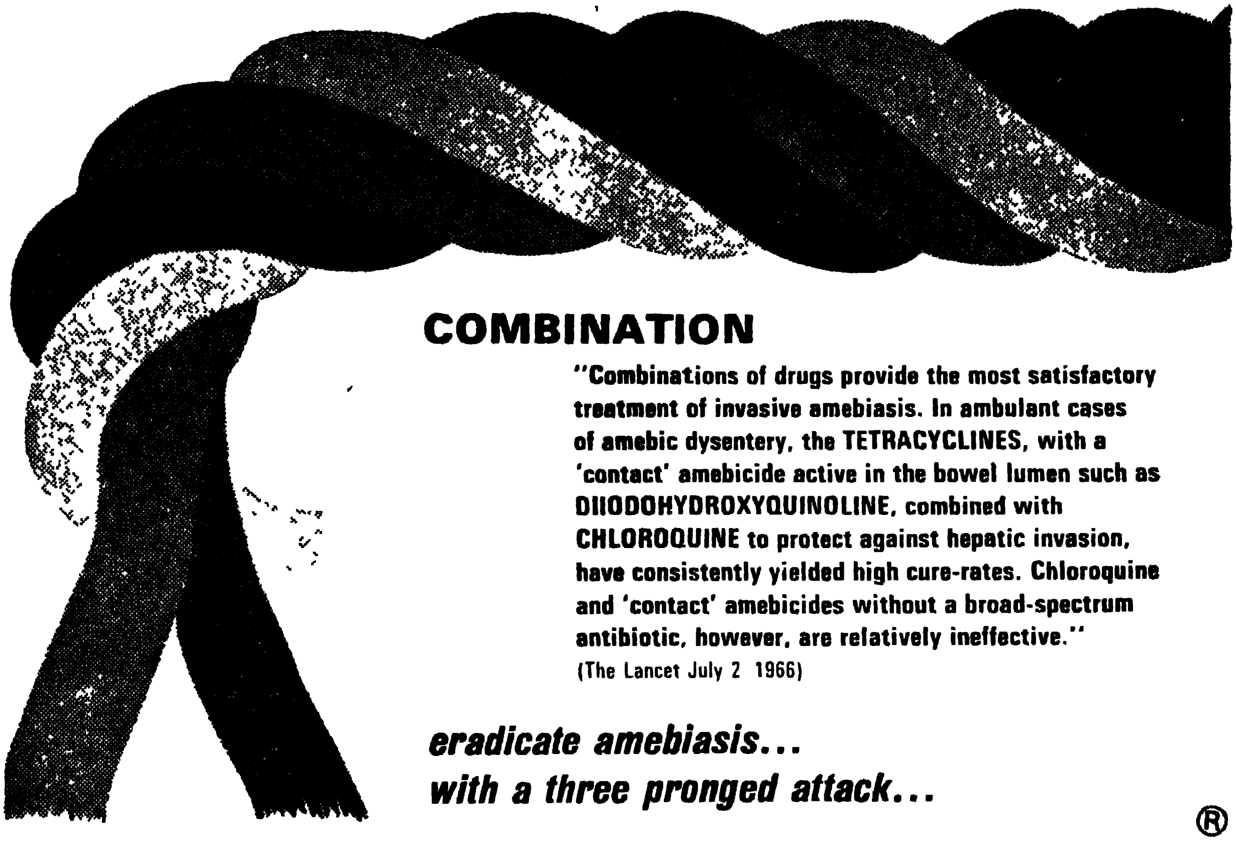

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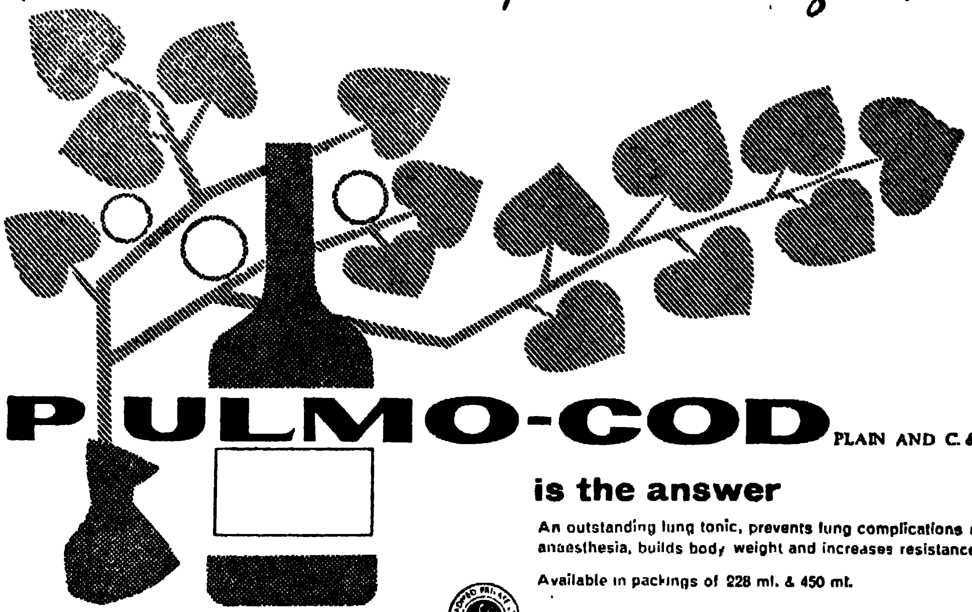

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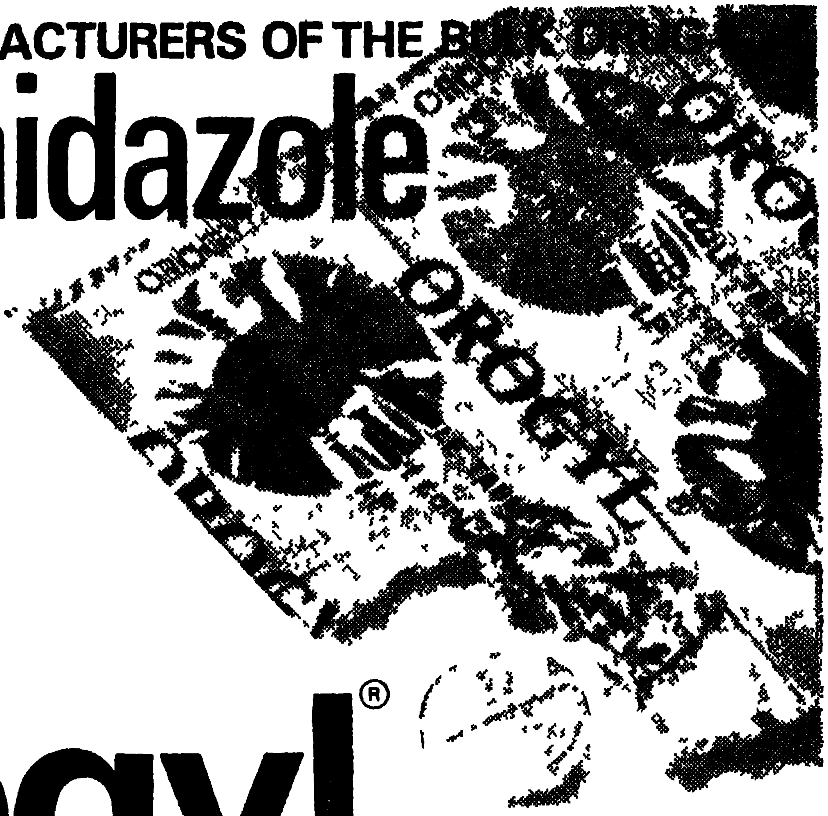

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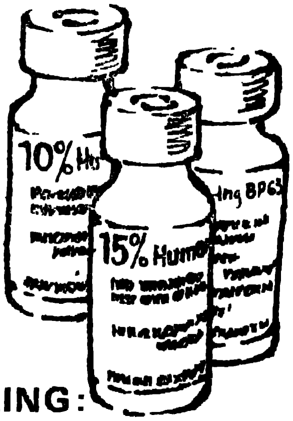

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B. K. BANERJEA*, (MRS.) U. BANERJEA**, S. C. SEN***

[Received for publication January 27, 1976]

While studying the nuclear reaction of spermatozoa, Feulgen and Rosenbeck (1924) observed that smears of fresh human semen treated with Schiff's fuchsin—sulphurous acid reagent, stained strongly the middle pieces and tails of the sperms—although these parts are devoid of nuclear material. These results and consequent studies showed that the protoplasm of the cell possesses some chemical substance which stains diffusely with Schiff's reagent, but differs from nucleoproteins in being soluble in fat solvent ethanol. Subsequent research works (Feulgen and Bersin, 1939; Feulgen *et al.*, 1951) made believable that plasmalogen, a group of phospholipids, caused the staining effect on the cell. This phospholipid according to Lardy and Phillips (1944, 1945) is of great importance as a source of oxidative energy. The mechanism of utilisation of this reserve is regarded to involve hydrolytic cleavage of phospholipids, followed by an oxidation of the fatty acid portion *via* the citric acid cycle, and coupled with aerobic phosphorylations. Moreover, the lipid content in the sperms perhaps helps in warding off the acidity of the vagina as is viewed by Redenz (1924). Therefore, it is not unwise to think that phospholipid concentration can alter the quality of the semen. With this conception of presence of phospholipid in the sperms, quantitative estimation of phospholipid was carried out on the normospermic, oligospermic and azoospermic individuals.

MATERIAL AND METHOD

In 580 subjects of normal health, of age group between 21 years and 40 years, semen examinations were carried out. The subjects were asked to come after an abstinence of 4 days. Semen samples were collected by masturbation in a clean wide-bored bottle. Semens were examined within an hour of discharge, after its liquefaction. Besides the examination of sperm count of semens, sperm's motility, its viscosity and volume, the phospholipid content of semens were also estimated.

The sperm cell count was determined after the method described by Buxton and Southam (1958).

The motility of the spermatozoa was determined by putting a drop of semen on a clean dry slide, placing a cover slip over it, and examining several fields under high power magnification. The percentage of spermatozoa that progressed directly across the microscopic field was calculated in several fields for each sample of semen. The average was expressed as the percentage of spermatozoa having a good rate of progression.

For estimating the phospholipid, the lipid phosphorus was determrined by the modified method of Youngburg and Youngburg (1930) using the phosphate procedure of Fiske and Subba Row (1925). Phospholipid values were calculated by multiplying lipid phosphorus values by 25.2.

One ml. of semen was taken in a 20 ml. marked wide-mouthed test tube with 18 ml. alcohol-ether mixture (3 : 1). This was then heated to boiling in a water bath. The volume of the mixture was made 20 ml. by adding 3 : 1 alcohol-ether mixture again. After filtration through a fat-free filter paper, 8 ml. of the aliquot was taken and evaporated. Then it was digested with 2.5 ml. of 5N sulphuric acid

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Indira Gandhi Medical College, Nagpur Municipal Corporation, Nagpur

* M.B.B.S., M.D., Reader in Physiology, At present : Professor of Physiology, Medical College Aurangabad

** M.Sc., Ph.D., Reader in Biochemistry, Government Medical College, Nagpur

*** M.B.B.S., D.T.M., M.D., Dean and Professor of Physiology and the remaining procedure was followed as recommended by Youngburg and Youngburg (*loc. cit.*). The readings were taken in Klett-Summerson colorimeter using wave length of 660 millimicron.

Furthermore, 110 semen samples were taken from normospermics where 3 subdivisions were made in each sample: (i) Semen, (ii) seminal fluid, and (iii) washed sperms from semen. Estimation of phospholipid contents of (i) semen, (ii) seminal fluid, and (iii) washed sperms from semen were carried out.

COLLECTION OF SEMINAL PLASMA:

To obtain spermatozoa-free seminal plasma, Rozin (1960) method was followed where whole semen or supernatant fluid was centrifuged. The following method was employed: Semen or supernatant fluid was centrifuged at the rate of 2800 rpm for 15 to 40 minutes, using a centrifuge. At intervals, during the course of centrifugation, samples of seminal plasma were removed for examination. When no spermatozoa, either motile or non-motile, were found on examining several microscopic fields in 2-3 spreads of seminal plasma, centrifugation was discontinued. Seminal plasma was removed from the semen sediment immediately after centrifugation, as the highly motile spermatozoa were liable, on standing, to invade the cell-free plasma. The sediment was taken as sample for the sperms.

OBSERVATIONS

Out of 580 subjects of age group 21 years to 40 years studied, 178, 328 and 74 were normospermic, oligospermic, and azoospermic respectively. The result of examination of semen for sperm count, its volume and viscosity, sperm motility as well as phospholipid content is shown in Table 1.

Phospholipid content obtained in normospermia was 495.2 ± 32.5 mg./100 ml. semen. In the oligospermic groups, sperm counts of 60 to 80 million/ml., 40 to 60 million/ml., 20 to 40 million/ml. and up to 20 million/ml., the phospholipid concentrations were found to be 390.5 ± 10.8, 338.2 ± 8.2., 298.5 ± 12.2 and 170.7 ± 26.5 mg./100 ml. of semen respectively. The mean value of phospholipid determined in azoospermia was 78.0 ± 3.2 mg./100 ml. of semen. So the phospholipid content in azoospermia was found much less in quantity in comparison to the oligospermia or normospermia. Again, the oligospermic cases showed comparatively lower content of phospholipid in semen in respect to the normospermics. Hence, a sequence was observed in the result which showed increase in content of phospholipid level in semen with increase in count of the sperms. However, for confirmation of this view, 110 semen samples of different sperm concentrations were subdivided each into: (i) Semen, (ii) seminal fluid, and (iii) only sperms. The result showed the highest concentration of phospholipid in the 'only sperms' samples out of the 3 subdivisions (Table 2).

TABLE 1—SHOWING THE RESULTS OF SEMEN EXAMINATION

Group with sperm count	Volume (ml.)	Viscosity	% of motility	Phospholipid (mg./100 ml. of semen)
Normospermic group having sperm count >80 million/ml. (Total No. 178 males)	3.5 ± 1.5	Normal	90 ± 8	495.2 ± 32.5
Oligospermic group having sperm count between 60 million/ml. and 80 million/ml. (Total No. 102 males)	3.5 ± 1.5	Normal	85 ± 10	390.5 ± 10.8
Oligospermic group having sperm count between 40 million/ml. and 60 million/ml. (Total No. 78 males)	3.5 ± 1.5	Normal	74 ± 8	338.2 ± 8.2
Oligospermic group having sperm count between 20 million/ml. and 40 million/ml. (Total No. 86 males)	2.8 ± 1.0	Normal	60 ± 10	298.5 ± 12.2
Oligospermic group having sperm count up to 20 million/ml. (Total No. 62 males)	2.5 ± 1.2	Reduced	48 ± 10	170.7 ± 26.5
Azoospermic group (Total No. 74 males)	2.5 ± 1.2	Reduced	Nil	78.0 ± 3.2

TABLE 2—SHOWING PHOSPHOLIPID CONTENT IN SEMEN, SEMINAL FLUID AND SPERMS

	Phospholipid (mg./100 ml.)
Semen	486.8 ± 26.6
Seminal fluid	82.4 ± 2.5
Only sperms	553.2 ± 1.1

DISCUSSION

Quantitative estimation of phospholipid was done on semen of 580 individuals. The result showed increased level of phospholipid concentration in normospermics in comparison to the oligospermics or azoospermics. In oligospermic cases, again, phospholipid content was found to be more than that in azoospermic cases. Therefore, it was observed that with the increase of sperm concentration, phospholipid level in semen became elevated. This observation was further confirmed as shown in Table 2 where 'only sperms' samples showed more phospholipid content.

This study showed that phospholipid content and sperm count were proportional to each other. Therefore, it would be worthwhile to mention that estimation of phospholipid in semen samples gave us suggestive informations of the quality of semen in relation to its sperm concentration. Further investigations and estimations of phospholipids on individuals in a larger scale, however, can give us a directive regarding the quality of semen, when and below what range of phospholipid concentration, semen can be reported as azoospermia, oligospermia or normospermia. Therefore, possibly phospholipid estimation in semen may be considered as one of the tests for investigation of sterility in the male partner.

SUMMARY

Quantitative estimation of phospholipid was done on semen of 580 individuals. Out of 580, 178 were normospermics, 328 oligospermics and 74 were azoospermics. Phospholipid content was found maximum in the normospermics, then in the oligospermics and minimum in the azoospermics. Besides these observations, examination of 110 semen samples, where 3 subdivisions were made in each sample (semen, seminal fluid, and only sperms), to study for phospholipid content, the maximum level of phospholipid was found in the 'only sperms' samples.

Therefore, it may be said, with all these findings, that with the increase of sperm count phospholipid level rises. In other words, phospholipid estimation may give some suggestion regarding the quality of semen. Further observation of phospholipid content in semen of individuals in a larger scale, however, may give us a directive regarding the quality of semen and probably be considered as one of the tests for investigation of male infertility.

ACKNOWLEDGEMENT

The authors wish to thank the staff members for their co-operation.

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2

Reid Index and Emphysema

TEJINDAR SINGH*, KAMLA CHANDRA**

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The close association between chronic bronchitis and emphysema is well known. Where emphysema and chronic bronchitis are found together, the emphysema might have been preceded by chronic bronchitis or each may have developed independently of each other. Clinically, characteristic feature of chronic bronchitis is the production of mucoid sputum. Pathologically, it is due to hypertrophy of mucous glands which is the morphological yardstick for the diagnosis of chronic bronchitis.

A quick and simple method of assessing gland hypertrophy is by reference to the ratio between gland thickness and bronchial wall thickness (Reid, 1960). Reid index is defined as the gland to wall ratio of the bronchus, wall as the thickness from the basement membrane of the bronchus to the inner perichondrium of the cartilage of bronchus. In healthy individuals, the mucous glands of the bronchial wall are not hypertrophied. Therefore, the Reid index varies from 0.15 to 0.35. In chronic bronchitis, there is sustained mucous gland hypertrophy and therefore Reid index increases sometimes up to even 0.8. A study of chronic bronchitis, as assessed morphologically by measuring Reid index in cases with and without emphysema, is discussed.

MATERIAL AND METHOD

Necropsy material was available from 100 consecutive medicolegal autopsies. One lung was studied in each case. The lung was inflated with aqueous formalin at a positive pressure of 25-30 cm. of water for 3 days. Then, the bronchus was tied and the lung kept in formalin for one week. The lungs were then cut into sagittal slices 8 mm. thick and barium sulphate impregnation was done. The slices were examined under water by a dissecting microscope. Abnormal air spaces of 1 mm., or more in size with or without destruction were taken as emphysematous areas (Heard and Izukawa, 1964). Assessment of the degree of emphysema was made as trace—when less than 5 per cent of the lung parenchyma was affected, mild—when 6-25 per cent of the lung was affected, moderate—when 26-50 per cent of the lung was involved and severe—when

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Department of Pathology, Maulana Azad Medical College, New Delhi

* M.D., Demonstrator

** M.D., F.R.C.Path., M.A.M.S., Professor and Head of the Department

more than 50 per cent of the slice showed emphysema.

From each lung two transverse sections were taken from the upper and lower lobe bronchi. Tissues were routinely processed, embedded in paraffin wax and cut at 5 μ thickness. Microscopic examination was carried out and changes in the epithelial lining of the bronchi and mucous gland hypertrophy were noted. From each section of the bronchus, Reid index was calculated by measuring the gland thickness and the inner wall of the bronchus, i.e., from the basement membrane of the epithelium to the inner aspect of the perichondrium (Fig. 1)

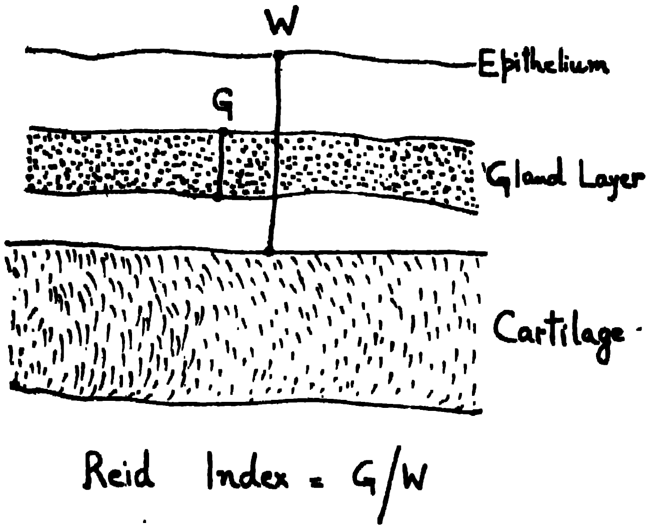

FIG. 1—SHOWING THE METHOD OF CALCULATION OF REID INDEX BY MEASURING THE GLAND THICKNESS (G) AND THE INNER WALL OF THE BRONCHUS (WALL THICKNESS, W)

Glands situated behind or at the side of the cartilage were not considered. These measurements were made with a micrometer in the eye piece. Six readings were taken from each bronchus. The apparent maximal thickness of the glands was measured exactly on the same line. Reid index was calculated for each set of measurement and the mean of these ratios was taken as the final figure for each case.

OBSERVATIONS

Of the 100 cases studied, 39 cases showed emphysema. It was observed that trace emphysema was present in 15 cases, mild emphysema in 15 cases, moderate emphysema in 6 cases and 3 cases were affected by severe emphysema.

It was seen that 27 of the 39 cases with emphysema had Reid index more than 0.45. It was also observed that 16 of the 61 cases without emphysema had Reid index more than 0.45 (Table 1).

Thirteen of the cases with emphysema had Reid index more than 0.55 which is indicative of marked mucous gland hypertrophy. Five of the 6 cases with moderate emphysema and all the 3 cases with severe emphysema showed Reid index more than 0.45 (Table 2). The mean Reid index was 0.45, 0.47, 0.51 and 0.55 for trace, mild, moderate and severe emphysema respectively. The mean Reid index for 39 emphyesmatous cases was 0.49 and for non-emphysematous cases it was 0.39.

TABLE 1—SHOWING RELATIONSHIP BETWEEN REID INDEX AND EMPHYSEMA

Reid index	No. of cases	No. of cases without emphysema	No. of cases with emphysema
Less than 0.36	28	23	5
0.36-0.45	29	22	7
0.46-0.55	27	13	14
More than 0.55	16	3	13
Total	100	61	39

TABLE 2—SHOWING RELATIONSHIP BETWEEN DEGREE OF EMPHYSEMA AND REID INDEX (39 CASES)

Degree of emphysema	Total No. of cases	Reid index			
		<0.36	0.36-0.45	0.46-0.55	>0.55
Trace emphysema	15	2	4	6	3
Mild emphysema	15	3	2	5	5
Moderate emphysema	6	Nil	1	2	3
Severe emphysema	3	Nil	Nil	1	2
Total	39	5	7	14	13

DISCUSSION

To calculate Reid index, sections were taken from the lobar bronchi because in these areas the mucosa and the cartilage are parallel (Reid, *loc. cit.*). Reid index rather than absolute measurement of gland thickness has been adopted because Reid index is a ratio and artificial increases in gland thickness due to oblique cuts of bronchi are eliminated.

In the present series, the mean Reid index for cases which did not show emphysema has been 0.39. Thurlebeck and Angus (1964) recorded it to be 0.44 in their series and this has been accounted for because one-fifth of the cases had histories of chronic bronchitis and had a higher than normal gland to wall ratio. Reid (*loc. cit.*) observed the mean Reid index to be 0.26 in non-emphysematous cases and non-bronchitic cases. In non-emphysematous cases in this series, higher Reid index (0.39) than that of Reid, is observed because 16 of the 61 cases had Reid index more than 0.45. This probably indicates chronic bronchitis without emphysema, though in the present study clinical history of chronic bronchitis was not available because all the cases were medicolegal necropsies.

The mean Reid index for emphysematous cases is

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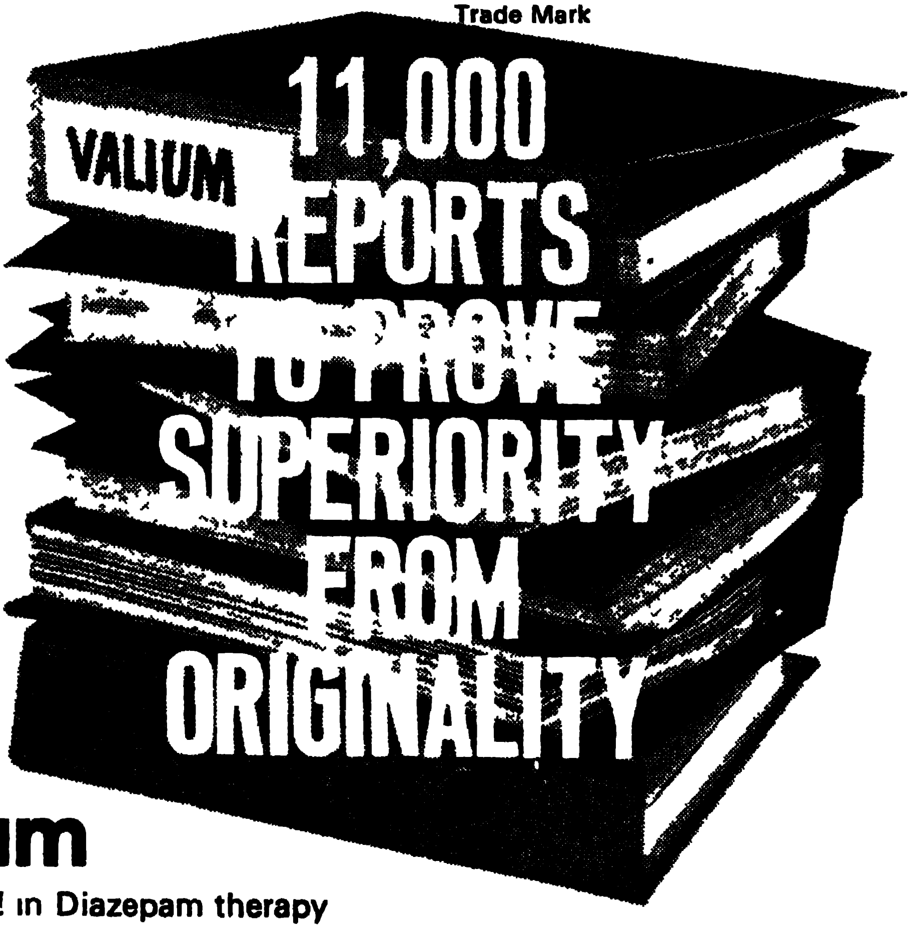

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0.49 in the present study. It was 0.45, 0.47, 0.51 and 0.55 for trace, mild, moderate and severe emphysema respectively. The Reid index showed concurrent increase with the severity of emphysema. Thurlebeck and Angus (*loc. cit.*) observed the mean Reid index as 0.46, 0.50 and 0.56 for mild, moderate and severe emphysema respectively. Sixty-seven per cent of cases in this series (10/15 cases) with mild emphysema and 84 per cent (5 of the 6 cases) of the cases with moderate emphysema had Reid index more than 0.45. Thurlebeck and Angus (*loc. cit.*) recorded almost similar findings. Of their 106 autopsies, only 40 per cent of the cases with moderate emphysema and 85 per cent of the cases with severe emphysema had chronic bronchitis and in the rest of the cases the Reid index was within normal range.

Overlap in mucous gland hypertrophy in emphysematous and non-emphysematous series indicates that chronic bronchitis and emphysema may occur independently of each other (Thurlebeck and Angus, *loc. cit.*: Dunnill, 1974). Dunnill (*loc. cit.*) says that the natural history of mucous gland hypertrophy is difficult to follow on a time basis. It is not known whether the hypertrophy of the glands regresses and eventually atrophy occur with age or whether the hypertrophy persists throughout life. Therefore, overlap of Reid index betwen emphysematous and non-emphysematous cases is expected.

The Reid index showed concurrent increase with the increase in the severity of emphysema indicating that chronic bronchitis and emphysema may occur together. Mucous gland hypertrophy was also seen in some cases without emphysema. No mucous gland hypertrophy was observed in some emphysematous cases, thus, emphysema may occur independently of chronic bronchitis.

SUMMARY

Lungs were examined from 100 medicolegal autop-ies for assessment of emphysema and mucous gland ypertrophy in the bronchi. The mean Reid index or emphysematous cases was 0.49. The Reid index howed stepwise increase as the severity of emphy-ema increased. Overlap in mucous gland hyper-rophy in emphysematous and non-emphysematous ases has been observed.

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3

Bacteriological Study of Urinary Tract Infection

M. Q. KHAN*, P. L. TANDON**

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Infection of the urinary tract is a common urological condition. It has been known to be most common infection in females. Urinary tract infection at times is so intractable that in spite of introduction of a large number of drugs it is impossible to eradicate it, the main reason being development of drug resistant bacteria. A wrong therapy may lead sensitive organisms to become resistant thus endangering life with serious consequences. In all cases of bacterial infection of urinary tract the isolated organisms should be tested for their sensitivity to the antimicrobial drugs before any rational treatment can be undertaken.

Isolation of organisms from samples of urine even of normal individuals made the demonstration of organisms in the samples of urine in urinary tract infection of debatable significance, i.e., whether the organisms isolated from samples of urine of a suspected case of urinary tract infection was its causative agent or represented just the normal bacterial flora of the urinary tract. It made the final diagnosis of a case of urinary tract infection more difficult and thus led to the introduction of quantitative bacterial culture of urine samples. It is suggested that presence of 100,000 or more organisms/ml. of urine indicate the presence of urinary tract infection. This test is quite reliable but requires considerable time and a well equipped laboratory, hence other simpler and less time consuming tests, such as triphenyl tetrazolium chloride (TTC) and catalase tests, were evolved.

In the present study quantitative bacterial culture of urine samples was done along with the less time consuming tests, such as, TTC and catalase tests. Other examinations like direct smear and pus cell count were also carried out. The results of special tests (TTC and catalase), direct smear and pus cell count were compared with those of quantitative bacterial culture. Antibiotic sensitivity test of the organisms was also carried out.

MATERIAL AND METHOD

The material consisted of 500 samples of urine sent for culture from the various clinical depart-

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* M.D., Assistant Professor of Pathology and Microbiology, M. P. Shah Medical College, Jamnagar

** M.D., Professor and Head of the Department of Pathology and Microbiology, Gandhi Medical College, Bhopal

ments of Hamidia Hospital and Sultania Zanana Hospital, Bhopal. Mid-stream samples were collected in sterile test tubes and each sample was divided into 3 equal parts ; the 1st part was utilised for quantitative bacterial culture, the 2nd for TTC test and catalase test and the 3rd part for direct smear examination for bacteria and for pus cell count.

Quantitative bacterial culture—It was done within 20-40 minutes of collection of urine samples. In case of delay the samples were stored in the refrigerator. Culture was done on nutrient agar, MacConkey's media and blood agar by the pour plate method (Kass, 1957) and streak plate method or semiquantitative method (Gould, 1965). Number of organisms present per ml. of urine was counted by both the methods. Final identification of the organism was done by the method described by Cruickshank (1975).

TTC test and catalase test—These are simple tests to detect urinary tract infection. These are positive in cases of significant bacteriuria. TTC test was performed as described by Simmons and Williams (1962) and catalase test as described by Gangnon *et al.* (1959). TTC test is based on the observation that the actively respiring bacteria reduce a colourless 2 : 3 : 5 triphenyl tetrazolium chloride into a pink to red coloured insoluble compound triphenyl tetrazolium formazone in an alkaline pH (Wundt, 1950, cited by Simmons and Williams, *loc. cit.*).

Direct smear examination and pus cell count—For direct smear examination of uncentrifuged urine a sterile platinum loop of inside diameter of 4 mm. was used. A loopful of urine was placed on a clean glass slide and was allowed to dry without any manual spreading. It was fixed and stained by Gram's technique and examined under oil immersion objective for presence of organisms.

For examination of centrifuged deposit smear 10 ml. of urine was placed in a sterile centrifuge tube and was centrifuged at a speed of 3000 rpm for 3 minutes. Supernatant fluid was discarded and the deposit was made up to 0.5 ml. by mixing it well with normal saline. A loopful of the deposit was placed on a clean glass slide. It was dried, fixed and stained by Gram's technique and examined under oil immersion objective for the presence of organisms.

Pus cell count of uncentrifuged urine was done as described by Kunin *et al.* (1962) and of centrifuged urine as described by Kleeman *et al.* (1960).

Antibiotic sensitivity test—It was carried out with dried discs prepared according to the method described by Bhaskaran and Ramamohan Rao (1963). It was done against penicillin—10 units/disc., streptomycin—10 µg./disc, nitrofurantoin—200 µg./disc, chloramphenicol—25 µg./disc, polymyxin—250 units/disc, methenamine mandelate—300 µg./disc and oxytetracycline—25 µg./disc. Nutrient agar plate was utilised to study the antibiotic sensitivity test. The degree of sensitivity was noted by measuring the easily visible area of inhibition of growth produced by the diffusion of the drug from the disc into the surrounding medium and was measured in mm. and designated as follows :

No zone of inhibition—resistant ; zone of inhibition less than 15 mm.—slightly sensitive ; zone of inhibition between 16 mm. and 20 mm.—moderately sensitive ; zone of inhibition between 21 mm. and 30 mm.—markedly sensitive ; zone of inhibition more than 30 mm.—highly sensitive.

OBSERVATIONS

Out of 500 samples cultured, 220 (44 per cent) were bacteriologically positive, 10 (2 per cent) were contaminated and 270 (54 per cent) were sterile. Table 1 shows the incidence of type of infection in 220 bacteriologically positive cases. Table 2 shows the distribution of different urinary organisms. *Esch. coli* was isolated from the largest number of cases (53.3 per cent).

TABLE 1—SHOWING INCIDENCE OF THE TYPE OF INFECTION

Type of infection	No. of cases	Percentage	No. of strains isolated
Monobacterial :			
Pure coccal	27	12.28	27
Pure bacillary	160	72.72	160
Polybacterial :			
Mixed bacillary or coccal and bacillary	33	15.0	66
Total	220		253

TABLE 2—SHOWING INCIDENCE OF THE ORGANISMS ISOLATED

Organisms	Number of strains		Percentage
Esch. coli		135	53.3
Kl. aerogenes		72	28.4
Cloaca		1	0.3
Arizona		1	0.3
Citrobacter		2	0.7
Alkalescens-Dispar		1	0.3
Proteus		10	3.9
Pr. vulgaris	1		0.3
Pr. mirabilis	4		1.5
Pr. morganii	1		0.3
Pr. rettgeri	2		0.7
Pr. providencia	2		0.7
Ps. pyocyanea		4	1.5
Alc. faecalis		2	0.7
Staphylococcus		18	7.1
Coagulase positive	3		1.18
Coagulase negative	15		5.92
Strept. faecalis		6	2.3
Strept. β haemolyticus		1	0.3

Bacterial counting for the number of organisms present per ml. of urine showed that more than 100,000 organisms were present in 205 (41 per cent) cases, between 10,000 and 100,000 organisms in 15 (3 per cent) and less than 10,000 organisms (contaminated cases) in 10 (2 per cent) cases; there was no growth in 270 (54 per cent) cases.

TTC test was positive in 215 (43 per cent) cases and negative in 285 (57 per cent), while catalase test was positive in 214 (42.8 per cent) and negative in 286 (57.2 per cent) cases.

Direct smear examination for organisms showed that in case of uncentrifuged specimens the result was positive in 200 (40 per cent) cases and negative in 300 (60 per cent), while in centrifuged specimens it was positive in 210 (42 per cent) cases and negative in 290 (58 per cent) cases.

Presence of more than 5 pus cells per high power field and more than 10 per high power field in uncentrifuged and centrifuged specimens of urine respectively were considered significant.

Table 3 shows correlation between bacterial count TTC test, catalase test, direct smear examination and pus cell count.

Table 4 shows the number and percentage of micro-organism sensitive to different drugs. Nitrofurantoin was found to be the most effective drug and was followed by chloramphenicol, streptomycin, polymyxin, methenamine mandelate, oxytetracycline and penicillin in order of frequency.

DISCUSSION

Out of 500 samples cultured, 220 (44 per cent) were bacteriologically positive. Of the positive samples, 85 per cent had monobacterial infection and 15 per cent had polybacterial infection. As regards incidence of the different micro-organisms *Esch. coli* (53.3 per cent) and *Kl. aerogenes* (28.4 per cent) was remarkable. *Esch. coli* being the commonest pathogen for urinary infection was also supported by the observations of Rhoads *et al.* (1952), Panda *et al.* (1966), Samuel *et al.* (1968), Belapurkar *et al.* (1970), Saxena *et al.* (1972) and Roy *et al.* (1972). However, Pulasky and Amspacher (1947) and Sanford *et al.* (1956) found *Kl. aerogenes* to be the chief offending organism.

A bacterial count of 100,000 or more per ml. of urine has been accepted as significant by almost every worker and is considered enough to confirm infection. In the present study a count of more than 100,000 organisms per ml. of urine had been observed in 41 per cent of the cases, whereas 3 per cent of the cases had bacterial count between 10,000 to 100,000/ml. of urine and 2 per cent had bacterial count below 10,000/ml. of urine. The significance attached to the bacterial count between 10,000 and 100,000 per ml. of urine is highly controversial. Merrit and Sanford (1958) considered a bacterial count of 10,000 or more per ml. of urine of catheterised samples and 50,000/ml. of clean voided samples as significant. Gillespie *et al.* (1960) regarded

TABLE 3—SHOWING CORRELATION BETWEEN BACTERIAL COUNT AND OTHER TESTS

Bacterial count per ml. of urine	No. of cases	Positive TTC test	Positive catalase test	Direct smear examination		Pus cell count	
				Uncentrifuged specimen	Centrifuged specimen	Uncentrifuged 5 or more/ high power field	Centrifuged 10 or more/ high power field
More than 100,000	205	200 (97.5%)	199 (97.07 %)	188 (91.7 %)	196 (95.6 %)	204 (99.6 %	204 (99.6 %)
Between 10,000 and 100,000	15	14 (93.6%)	13 (86.6 %)	10 (66.6 %)	12 (80 %)	13 (86.7 %)	13 (86.7 %)
Below 10,000	10	1 (10 %)	1 (10 %)	2 (20 %)	2 (20 %)	1 (10 %)	1 (10 %)
Sterile	270	—	1 (0.37 %)	—	—	2 (0.7 %)	2 (0.7 %)

TABLE 4—SHOWING NUMBER AND PERCENTAGE OF MICRO-ORGANISM SENSITIVE TO DIFFERENT DRUGS

Organisms	No. of strain	Nitrofurantoin		Chloramphenicol		Streptomycin		Polymyxin		Methenamine mandelate		Oxytetracycline		Penicillin	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Esch. coli	135	80	59.9	70	51.8	66	48.8	56	41.4	50	37.03	40	29.6	0	0
Kl. aerogenes	72	50	69.4	45	62.5	45	62.5	40	55.5	58	52.7	38	52.7	0	0
Staphylococcus	18	15	83·3	10	55.5	9	50	8	44.4	10	55.5	11	61.1	0	0
Proteus	10	8	80.3	8	80	6	60	7	70	7	70	6	60	2	20
Strept. faecalis	6	4	66.6	1	16.6	2	33.3	1	16.6	2	33.3	1	16.6	0	0
Ps. pyocyanea	4	1	25	1	25	1	25	0	0	0	0	1	25	0	0
Citrobacter	2	1	50	1	50	1	50	0	0	1	50	1	50	0	0
Alc. faecalis	2	2	100	1	50	1	50	1	50	0	0	1	50	1	50

Sensitivity pattern of Cloaca, Arizona, Alkalescens-Dispar group and *Strept. β haemolyticus* could not be included in the above Table as only one strain each of these organisms was isolated even a count of 3,000 organisms per ml. of urine in clean voided samples as significant. Richard and Rosner (1968, cited by Wartman, 1969) suggested that bacterial count of 10,000 or more per ml. of urine was indicative of active urinary tract infection and a count below 10,000/ml. of urine could be regarded as negative. In this study, special tests were positive in a very high proportion of cases with bacterial count between 10,000 and 100,000/ml. of urine. More or less the same were the results of these tests in cases with bacterial count of more than 100,000/ml. of urine. These tests were almost negative in cases with bacterial count below 10,000 per ml. of urine. Therefore, it was suggested that the bacterial count between 10,000 and 100,000/ml. of urine in clean voided samples should also be considered as significant and a bacterial count below 10,000/ml. of urine should be considered as insignificant. This view was supported by Kass (*loc. cit.*), Keitz and Williams (1960), Vaishnav and Jhala (1963), Richard and Rosner (cited by Wartman, *loc. cit.*), Gohain *et al.* (1969) and Roy *et al.* (*loc. cit.*).

In the present study TTC test was found to be positive in 97.5 per cent of the cases having a bacterial count of more than 100,000/ml. of urine. Its diagnostic importance was still greater in the group of cases with bacterial count between 10,000 and 100,000 per ml., where the significance of bacterial count is doubtful. In this group of cases it was positive in 93.6 per cent of the cases. Cases with positive TTC test had catalase test also positive in a very high proportion. This was also supported by Simmons and Williams (*loc. cit.*) and Hardas and Junnarkar (1969).

In the present study catalase test was positive in 97.07 per cent of the cases with bacterial count more than 100,000/ml. of urine and in 86.6 per cent of the cases with bacterial count between 10,000 and 100,000/ml. of urine. A high correlation between positive catalase test and significant bacteriuria was made by Braude (1959) and by Montgomerie *et al.* (1966). On the other hand, a low percentage of positive catalase test in significant bacteriuria was observed by Kincaid-Smith *et al.* (1964) and by Gohain *et al.* (*loc. cit.*). A high percentage of false positive result was observed by Montgomerie *et al.* (*loc. cit.*) in 34 per cent of cases and by Gohain *et al.* (*loc. cit.*) in 23 per cent of cases. These observations by workers in the past as well as by the present authors are convincing enough to suggest that catalase test is not as reliable as TTC test for cases of urinary tract infection.

In the present study direct smear examination for bacteria and pus cell count in the centrifuged urine deposit as well as in the uncentrifuged urine showed high correlation with the significant bacteriuria. This was supported by Parker *et al.* (1966), Mathur *et al.* (1967) and Gohain *et al.* (*loc. cit.*).

Of the antimicrobial drugs nitrofurantoin was found to be the most effective drug. It was equally effective against Gram-negative bacilli and Gram-positive cocci. This is supported by Bhaskaran and Ramamohan Rao (*loc. cit.*), Dube and Shriniwas (1966) and Panda *et al.* (*loc. cit.*). Samuel *et al.* (*loc. cit.*) found chloramphenicol to be the most effective drug in their series. In the present study, among the organisms tested *Ps. pyocyanea* was found to be the most resistant organism.

SUMMARY

Urine samples collected from 500 cases, clinically diagnosed to be suffering from urinary tract infection, had been investigated by quantitative bacterial culture method as well as by special tests (TTC and catalase tests), direct smear examination and pus cell count. Out of 500 samples cultured, 220 (44 per cent) were bacteriologically positive. Of the positive samples, 187 (85 per cent) had infection with a single organism (monobacterial) and 33 (15 per cent) showed polybacterial infection. *Esch. coli* (53.3 per cent) and *Kl. aerogenes* (28.4 per cent) were mostly encountered. Special tests (TTC and catalase tests), direct smear examination and pus cell count showed high correlation with significant bacteriuria. The authors are of the opinion that these methods should be used routinely for detection of significant bacteriuria as they are simple and less time consuming. Of these TTC test is the most reliable. Quantitative bacterial culture is time consuming and can only be used in cases where accurate counts are required. Of the antimicrobial drugs, nitrofurantoin was found to be the most effective drug and penicillin was found to be least effective. Nitrofurantoin was equally effective against Gram-negative bacilli and Gram-positive cocci. Of urinary pathogens *Ps. pyocyanea* was found to be the most resistant organism.

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CASE NOTES

1

Hereditary Ataxia

(Indigenous Variety)

H. A. INSAF*, SIFAT AFZAL**

There has been growing realisation in recent years that the pattern of neurological disorders in India, differs from that described in Western literature (Wadia, 1973). Hereditary ataxia is not uncommon in India but the pattern of neurological manifestations is different from that described in classical literature. Typical Friedreich's ataxia is seen but atypical forms are not uncommon.

A purely indigenous variety of heredofamilial cerebellar ataxia has recently been described by Wadia and Swami (1971) and Wadia (1973) in which severe progressive cerebellar and mild spinal cord and peripheral nerve signs were accompanied by disorders of eye movement. Following is the report of a similar type of spinocerebellar ataxia in 3 generations of a family.

Case Reports

Case 1:

S.A., male, aged 16 years, reported to J. N. Medical College Hospital, Aligarh with history of difficulty in walking and speaking. One year ago the patient had mild fever for about a week, from which he had uneventful recovery. There was no history of headache, vomiting or convulsions during this period. But gradually he noticed increasing difficulty in walking with tendency to fall on either side. After a few days of the onset of this symptom he also noticed difficulty in articulation. These symptoms gradually progressed till he could walk with support and had great difficulty in expressing himself. During this period he had no disturbances of vision or hearing. There was no headache, vomiting or convulsions. On interrogation the patient admitted that his father had similar trouble and was an invalid and that his grandfather died of the same trouble.

Examination—The patient was poorly nourished and walked only with support. His gait was broad-based and grossly ataxic with titubation of trunk. His eye movements were very slow in all directions, both on spontaneous looking as well as on following the finger. But with perseverance movements were full in all directions and there was no true restriction of movement in any direction. The movements were grossly affected on turning the eyes upward and sideways and less so on looking down. The patient could turn the head in opposite direction keeping the eyes fixed in one place and he could follow the object slowly in all directions, but there was total absence of fast saccadic movements. There was also mild left sided facial paralysis. Other cranial nerves were normal. Fundi and hearing were normal. Speech was slurred and explosive with grimaces on his face.

There was gross cerebellar deficit with defective finger-to-nose and knee-to-heel tests and dysdiodokinesia but there was no nystagmus. Reflexes were diminished with pendular knee jerk. Plantars were bilaterally flexors. Sensations were normal. There was marked pes cavus and slight kyphoscoliosis. Rest of the clinical examination was not contributory. His BP was 100/87 mm. Hg.

Investigations—Haemoglobin—9.2 g. per cent, WBC—6800/c.mm., polymorphs—64 per cent, lymphocytes—31 per cent, eosinophils—5 per cent. Urine and stool—NAD. Blood sugar (fasting)—113 mg. per cent. CSF: Proteins—20 mg. per cent, sugar—80 mg. per cent, cells—less than 5 per c.mm.

Case 2:

H., 35-year-old male, father of case 1, when called for gave the history of progressive weakness of both lower limbs with difficulty in walking and difficulty in speaking for 8 years. There was no history of fever, convulsions, headache or vomiting.

Examination—The patient was thin built and grossly ataxic and like his son he could walk only with support and had broad-based gait. His speech was grossly dysarthric with slurring and scanning. He also had left sided facial weakness of upper motor neurone type paralysis. His vision and fundi were normal but his eye move-

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Department of Medicine, J. N. Medical College, Aligarh Muslim University, Aligarh

* M.D., M.R.C.P.(Lond.), M.R.C.P.(Edin.), Professor

** M.D., Lecturer

ments showed extreme degree of sluggishness in all directions. There was no true paralysis but the fast movements were totally absent. Other cranial nerves were normal. He showed gross degree of inco-ordination of limbs with dysdiodokinesia. Power was grade IV-V in limbs, tone was increased and deep reflexes were exaggerated. Plantar response was extensor on right side and flexor on left side. There was marked pes cavus but no kyphoscoliosis. Other systems were normal. No investigations were done as the patient was not ready for them.

He also gave history that his father had similar trouble of difficulty in walking and speaking and had ultimately become bed-ridden and died about 10 years ago after prolonged invalidism.

DISCUSSION

An entirely indigenous variety of heredofamilial spino-cerebellar ataxia has been described by Wadia and Swami (*loc. cit.*). In all 30 members of 12 families were studied by them over a period of 10 years. In this series severe progressive cerebellar and milder spinal cord and peripheral nerve signs were accompanied by disorder of eye movements. They noted autosomal dominant trait with some male preponderance. In these cases eye movements were found to be slow in all directions whether on direct command or following an object. The word 'viscous' has been used for such movements which are similar to those sometimes seen in rigid variety of Huntington's chorea (Starr, 1967). In their series facial weakness were a frequent feature while pyramidal signs were less remarkable. All these features were well seen in the present reported family.

The exact mechanism of these disturbances of ocular movement is not yet clearly understood. The anatomical pathway subserving eye movements is complex and knowledge of it is incomplete (Holmes, 1938 ; Westheimer, 1954 ; Rashbass, 1964 ; Robinson, 1965).

Saccadic movement is the fast movement to command or voluntary effort to move the eyes in a particular direction. It is rapid and is dependent on frontopontine pathways. If both frontopontine tracts are destroyed, there is global saccadic paralysis. Smooth pursuit movement on the other hand depends on occipitopontine connections (Ashwarth, 1975).

There is now post-mortem evidence that these patients suffer from a variety of olivo-ponto-cerebellar degeneration and the abnormal eye movements arise from lesions either in the brain stem or cerebellum or combination of both (Wadia, 1977).

SUMMARY

A family of indigenous variety of heredofamilial cerebellar ataxia with slow eye movements has been described and the literature has been reviewed.

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2

Naevus of Ota

P. C. DE*, A. K. BANERJEE**, G. N. SEAL***

Unilateral oculodermal melanocytosis with increased pigmentation of the lids and periorbital skin on the same side was described by Ota (1939, cited by Shaffer and Weiss, 1970) from Japan. Ocular involvement usually includes conjunctiva, sclera, choroid, iris and optic disc associated with homolateral dermal melanocytosis affecting particularly the region supplied by first and second divisions of the trigeminal nerve. Most of the cases are sporadic and a few are familial. Frequently, it occurs among orientals and rarely in Caucasians. Its occurrence had also been reported from India (Gupta and Gangwar, 1965 ; Jain *et al.*, 1965 ; Sahadeb *et al.*, 1969 ; Sood, 1969). Naevus of Ota with homolateral open angle glaucoma was described by Gordon *et al.* (1962) and Sahadeb *et al.* (*loc. cit.*).

A rare case of oculodermal melanosis with homolateral iritis and glaucoma is reported here.

CASE REPORT

A 45-year-old Indian, Hindu, married female came to the Eye Outpatients' Department complaining of mild pain and photophobia of left eye. On enquiry, it was revealed that the patient was born at full term without any instrumental interference and with no significant family history.

Examination—On examination, bluish-black colouration of the skin was found on the left side of the temple, forehead, periorbital region and eyelid (Fig. 1) associated

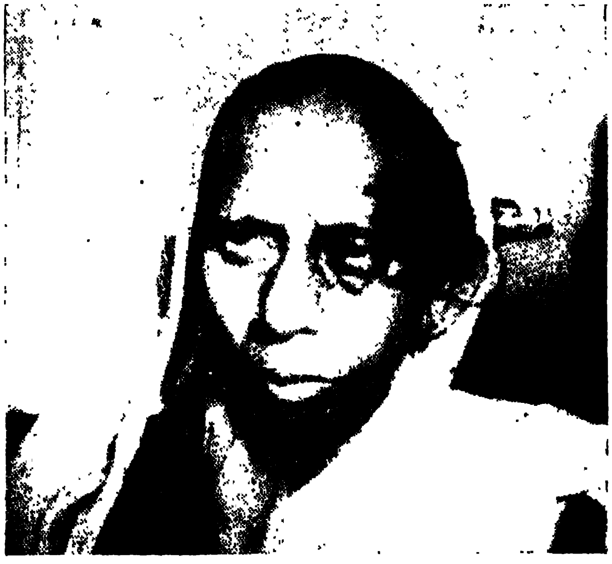

FIG. 1—SHOWING BLUISH-BLACK COLOURATION OF THE SKIN ON THE LEFT SIDE OF THE TEMPLE, FOREHEAD, PERIOIBITAL REGION AND EYELID

Department of Ophthalmology, B. S. Medical College and Hospital, Bankura
* M.B.B.S., M.D., M.A.M.S., Clinical Tutor
** M.B.B.S., D.O.M.S., M.S., Lecturer
*** M.B.B.S., D.O.M.S., F.R.C.S., Reader and Head

with patchy, mottled greyish-black episcleral and scleral pigmentation more on medial aspect of left eye extending from limbus to medial canthal area and also in upper half of sclera and overlying conjunctiva both nasally and temporally (Fig. 2).

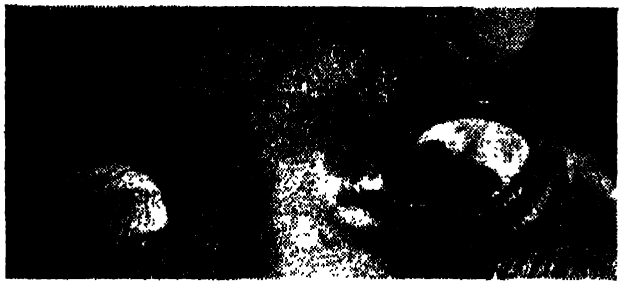

FIG. 2—SHOWING SCLERAL PIGMENTATION OF LEFT EYE EXTENDING FROM LIMBUS TO MEDIAL CANTHAL AREA

Hyperchromia of the left iris on its medial half was noticed associated with ciliary tenderness and circumcorneal congestion.

Biomicroscopic examination revealed thickening of the iris on medial half with blurring of stromal pattern on that side associated with aqueous flare without any keratitic precipitate (KP) or posterior synechia and pigment dispersal on back of cornea and anterior surface of lens and iris, suggesting that iritis had occurred. Fundus examination did not reveal any pigmentation in the posterior segment.

Gonioscopic examination showed angle at many places open. Slate-grey pigmentary changes were observed on and within the trabecular meshwork from 6 O'clock to 11 O'clock position. At some places, whitish fibrin like flakes were seen scattered over the trabecular meshwork all round. Vision was 6/9 in left eye and intra-ocular tension (IOP) was 27.4 mm. of Hg. (Schiotz 5.5 g. weight) in the left eye. Right eye had vision 6/6 and IOP was 13.2 mm. Hg (Schiotz), and no abnormality could be detected by biomicroscopic and gonioscopic examination.

Management—The patient had no treatment outside. He was given atropine sulphate eye ointment (1 per cent) and betamethasone sodium phosphate (0.1 per cent) eye ointment in left eye twice and thrice daily respectivly, and acetazolamide tablets (250 mg. tablet) twice daily orally to control the raised IOP. After seven days, patient was again examined and found that IOP was controlled and came to 14.5 mm. in left eye (Schiotz) and vision in left eye improved to 6/6. Subjective symptoms disappeared. Ciliary congestion became less but no KP or posterior synechia could be found and whitish fibrin flakes on trabecular meshwork disappeared but slate-grey pigmentary changes on it remained as before. Treatment by atropine sulphate eye ointment (1 per cent) and betamethasone sodium phosphate (0.1 per cent) eye ointment was continued for another one week as before but acetazolamide tablets were withdrawn. After one week, all treatment was stopped. There was no ciliary congestion or tenderness. On biomicroscopic examination, anterior segment picture was as before. IOP was recorded in both eyes and found to be 13.2 mm. Hg and 14.5 mm. Hg. (Schiotz) in right and left eye respectively.

Investigations—After 21 days provocative tests, *viz.*, diurnal variation of intra-ocular pressure was recorded by Schiotz tonometer with 5.5 g. weight at 4 hourly interval for 24 hours (Sorsby, 1964) which was started at 5 AM and water drinking test in which patient was given one litre of water to drink within 5 minutes and intra-ocular pressure was recorded before drinking water and every 15 minutes after drinking water for one hour by applanation tonometer to avoid scleral rigidity factor (Sorsby, *loc. cit.*) and field charting for glaucoma was done and all these tests did not reveal any positive result. X-ray did not show involvement of cranial or cervical bones. Examination of blood for total and differential leucocyte counts, ESR, urine, stool, post-prandial blood sugar and VDRL tests were done and no positive result could be found.

Follow-up—The patient was observed after 6 months when no subjective symptoms were present. Both biomicroscopic and fundus examinations were done but no abnormality could be detected except that hyperchromia on left iris, as mentioned before. Gonioscopic examination was done and slate-grey pigmentary changes on trabecular meshwork were seen in left eye as before whereas angle of anterior chamber in right eye was normal. IOP was recorded in both eyes again and found to be 14.5 mm. Hg. (Schiotz) in both eyes.

DISCUSSION

The dermal manifestation of naevus of Ota may be present at birth or become more apparent at puberty. The skin is usually involved in the distribution of the first two branches of the trigeminal nerve on one side containing large granules of melanin. The orbit, cranial bones, leptomeninges and optic nerve may also be affected.

Ocular melanocytosis may occur independently or in association with dermal melanocytosis. Patchy greyish-black scleral or episcleral pigmentation is characteristic. The most obvious ocular sign is hyperchromia of the involved iris as has been found in this case.

Regarding iritis, inflammatory changes in the iris may occur in association with hyperchromia of the iris, which suggests that perhaps a melanocytic influence may play a role. Routine special examination done for uveitis did not reveal any abnormality which is significant in this case, though it is to be viewed in the context of the fact that in a large number of cases of uveitis, neither a probable nor a suspected aetiological diagnosis can be reached which is reported to be as high as 80 per cent (Wood, 1961).

Naevus of Ota and homolateral glaucoma has been described in the literature (Shaffer and Weiss, *loc. cit.*). Whether this is due to mechanical blockage of angle or exit channel by melanocytes or not is still a debatable question. In this case, temporary rise of pressure was presumably due to blockage of chamber angle by inflammatory cells and deposition of whitish fibrin flakes which disappeared when inflammation subsided making the eye normotensive again as observed even after 6 months of attack suggests strongly that inflammatory phenomenon is responsible for glaucoma as other provocative tests for glaucoma were entirely negative, thereby excluding clinically the fact that the factor of melanocytic infiltration of the angle have an overt role in the pathogenesis of glaucoma in this particular patient, though it may have marginally compromised the efficacy of outflow channels of angle of anterior chamber.

SUMMARY

A rare case of oculodermal melanosis with homolateral iritis and glaucoma has been described. Blockage of chamber angle by inflammatory cells and fibrin flakes

was responsible for glaucoma and melanocytic influence play a role in causing iritis. The association of iritis and glaucoma on the same side of oculodermal melanosis has rarely been described before.

ACKNOWLEDGMENT

Betnesol (Glaxo) brand of betamethasone sodium phosphate 0.1 per cent and diamox (Lederle) brand of acetazolamide were used.

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3

Goodpasture's Syndrome

SIPRA MUKHERJEE*, K. S. CHUGH**
ARVIND G. BHAGWAT***

A syndrome of "lung purpura with nephritis" was described in 1919 by Goodpasture. Between 1955 and 1963, 50 cases of this syndrome had been recorded (Benoit *et al.*, 1964). The next 56 cases were, however, reported in less than half-the-time (1964-66), indicating both the greater awareness as well as increasing incidence of this syndrome (Proskey *et al.*, 1970).

The case reported here is probably the first case of Goodpostrure's syndrome, to be reported from this country. The case showed certain unusual features.

CASE REPORT

A 50-year-old woman presented with pain in the epigastrium, reddish urine, and blood streaked sputum as her main complaints, which had developed during the previous month. She was pale, anicteric, afebrile and normotensive. In the past, she had several episodes of sore throat which responded to therapy.

Examination—Physical examination revealed multiple oral ulcers, enlarged, smooth, non-tender liver and bilateral palpable kidneys on bimanual palpation. Spleen was not palpable. There was no lymphadenopathy or petechiae.

Investigations—Urinalysis showed moderate proteinuria, red cells, leucocytes, hyaline and granular casts. Culture of urine grew *Esch. coli* sensitive to tetracycline and nitrofurantoin.

Haemogram revealed haemoglobin—8.6-9.0 g. per cent. ESR—65 mm. 1st hour (Westergren). Total WBC—6,000/c.mm. with neutrophils—72 per cent, lymphocytes—26 per cent, eosinophils—2 per cent : reticulocytes—0.4 per cent. Blood smear showed striking diminution of platelets and anaemia was of normochromic, normocytic type.

Coagulogram revealed prolonged bleeding time of 13 minutes (normal—1-6 minutes). Coagulation time, prothrombin index, plasma recalcification time, partial thromboplastin kaolin time were within normal limits.

Blood chemistry showed normal serum cholesterol, normal fasting blood sugar, hypo-albuminaemia, hyperuricaemia, hyperphosphataemia and normal serum alkaline phosphatase.

ECG showed borderline left ventricular hypertrophy.

X-ray chest was normal. X-ray abdomen confirmed bilateral enlargement of the kidneys (right 11 cm., left 14.8 cm.).

Management—The only specific treatment given was haemodialysis. Prior to haemodialysis, the values of serum electrolytes and blood non protein-nitrogen fluctuated in the following range : Blood urea—180 540 mg. per cent, serum creatinine—10.6-21.0 mg. per cent, serum sodium—122-130 mEq./l., serum potassium—3.8-5.1 mEq./l., chlorides—80-99 mEq./l. and bicarbonates—27-29 mEq./l. After dialysis, blood urea fell from 540 to 260 mg. per cent and serum potassium from 5.1 to 4.0 mEq./l.

Course—Throughout the course of illness in the hospital (9 days), the patient remained afebrile and normotensive but there was persistent tachycardia. Urine output diminished progressively to anuria. Despite haemodialysis, which produced lowering of blood urea and serum potassium, the patient expired. The total duration of illness from the onset of symptoms was approximately 6 weeks.

Autopsy—At autopsy, the principle findings were confined to lungs and kidneys. The lungs were enlarged (combined weight 1530 g.) ; the pleura and the cut surface were covered with numerous petechiae (Fig. 1). Microscopically, there were scattered foci of intra-alveolar haemorrhages, haemosiderin-filled macrophages and occasional fibrin deposits within alveoli.

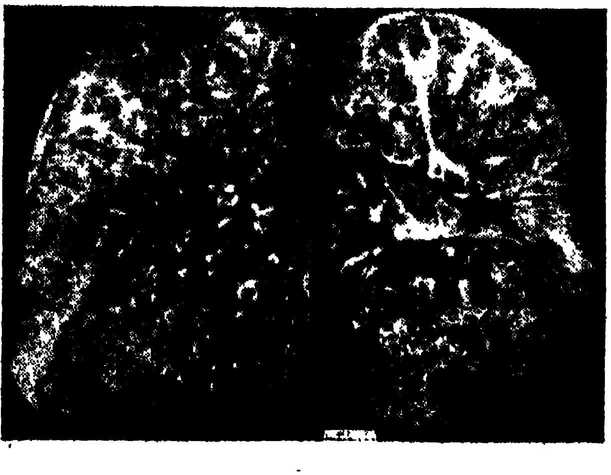

FIG. 1—SHOWING THE LUNG SURFACE COVERED WITH MULTIPLE PETECHIAE—THE SO-CALLED LUNG PURPURA

Postgraduate Institute of Medical Education and Research, Chandigarh

* M.D., Formerly Resident in Pathology, At present : Lecturer

** M.D., Professor of Nephrology

*** M.D., F.R.C.P.(C), Assistant Professor of Pathology

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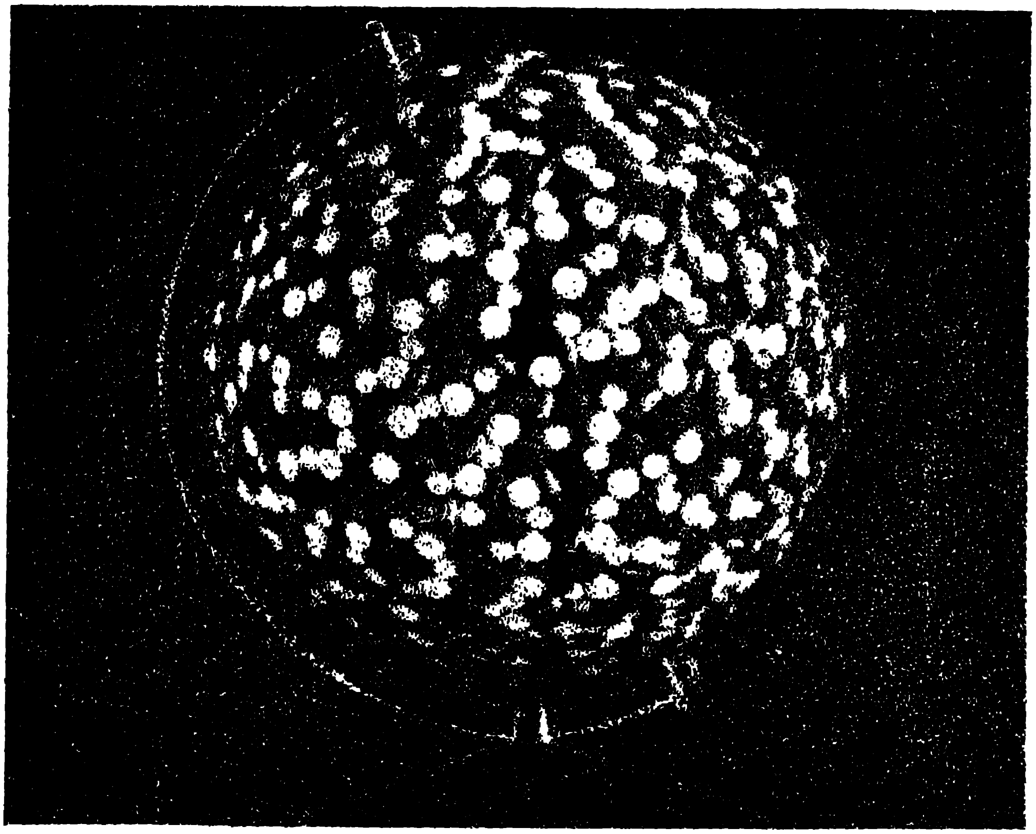

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The kidneys were pale and enlarged (combined weight 395 g.); the capsule and cut surface showed sparse clusters of petechiae. Microscopically many glomeruli showed proliferative epithelial crescents (Fig. 2, H.&E., x 440) and the tubules contained red cell aggregates.

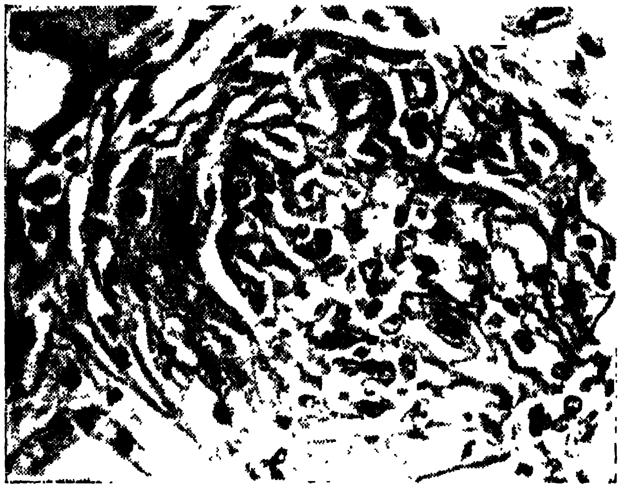

FIG. 2—SHOWING A TYPICAL PROLIFERATIVE EPITHELIAL CRESCENT PROJECTING INTO BOWMAN'S SPACE IN PHOTO-MICROGRAPH

Diagnosis—A combination of rapidly progressive glomerulonephritis, haematuria, anaemia, haemoptysis, "lung purpura" without skin lesions, hectic course with fatal termination was considered sufficiently diagnostic of Goodpasture's syndrome.

DISCUSSION

A typical case of Goodpasture's syndrome occurs in a man in his late twenties and is characterised by haemoptysis, anaemia, haematuria, radiological pulmonary infiltrates, a rapid but variable course ranging from a few weeks up to 41 weeks (Benoit *et al*., *loc. cit.*; Proskey *et al*., *loc. cit.*) and fatal termination. In this context, the present case showed many atypical features such as: (a) Occurrence in an elderly woman, (b) absence of radiological pulmonary infiltrates, (c) thrombocytopenia and (d) sparsity of petechial haemorrhages in the kidneys. Although predominantly a syndrome of young men, it does occur in women and elderly persons. The male to female ratio in two large series has varied from 5:1 (Benoit *et al*., *loc. cit.*) to 4:1 (Proskey *et al*., *loc. cit.*). The highest ages recorded in these two series have been 51 and 78 years respectively. No single feature of this syndrome is diagnostically sacrosanct. Thus, radiologically visible pulmonary infiltrates may be absent in as many as 11 per cent cases (Proskey *et al*., *loc. cit.*). Thrombocytopenia has not been previously reported in Goodpasture's syndrome. It should be recalled here that the case described by Goodpasture himself occurred during post-influenzal convalescence. Ever since then virus has been a strong candidate as the aetiologic agent of this syndrome. That many virus infections, if severe enough, can cause thrombocytopenia (Wintrobe, 1967) with or without intravascular coagulation (DesPrez and Marney, 1971) is well-known. Sparsity of renal petechiae in the case reported here can be explained on the basis of duration of the disease. According to Benoit *et al*. (*loc. cit.*), longer the course of the disease, smaller the kidneys and fewer the petechiae.

As the diagnosis in the present case was made retrospectively, appropriate material for virus studies and immunifluorescence was not collected. Our attempts to do immunoflourescence studies on formalin-fixed kidney tissue were unrewarding. It must however be emphasised that Berlyne (1972) has recently unequivocally stated that even globulin deposition in the glomeruli is not a specific feature of Goodpasture's syndrome.

Some idea of the rarity of this syndrome can be had from the fact that, in a total of 9603 autopsies done in the department of pathology between 1-1-1963 and 31-12-1973, the present case was the only one in which a diagnosis of Goodpasture's syndrome could be made with reasonable certainty. In another case, also an elderly woman of 55 years, development of "puffy face and reddish urine" ended fatally after 21 weeks. At autopsy, the kidneys, in addition to "flea-bitten" appearance, showed features of acute suppurative pyelonephritis, rapidly progressive glomerulonephritis and terminal acute tubular necrosis. The lungs showed evidence of healed fibrocalcific tuberculosis with recent and old intra-alveolar haemorrhages. As blood culture during life had grown Gram-negative organisms, there was a distinct probability of Gram-negative septicaemia in this case, which is known to be associated with intrapulmonary haemorrhages in about 15 per cent cases (Dupont and Spink, 1969).

SUMMARY

A case of Goodpasture's syndrome has been described in a middle aged woman. The justification of this diagnosis, despite some atypical features and its rarity, is discussed. The problems of diagnosis in a case complicated by other disease processes is highlighted.

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4

Atypical Presentation of Caries Rib

MAM CHANDRA*, K. N. SINHA**

Cold abscesses at various distant abnormal sites in cases of caries rib and Koch's spine are well known in clinical practice, but a case of caries rib presenting as a completely reducible swelling on the back is a rare one.

K. G.'s Medical College, Lucknow
* M.D.(Medicine), Lecturer, Department of Medicine
** M.S., Lecturer, Department of Thoracic Surgery

Detailed case notes of such a patient are presented here. This patient was clinically diagnosed as a case of herniation of lung and the fact that it is a case of caries rib with two communicating extra-and intrathoracic pockets was revealed only after the operation.

CASE REPORT

Mr. D. K., a 30-year-old male, was admitted in the G. M. and Associated Hospitals, Lucknow on 15-3 1977, with complaints of a swelling on the upper part of back on the right side which used to become prominent on coughing and sometimes subsided completely with a peculiar sound. He casually noticed this swelling in January, 1976. In April, 1976, he suffered from fever, cough with expectoration and was diagnosed as a case of pulmonary tuberculosis. He was treated with injection streptomycin sulphate IM and tablets containings INH and PAS. This treatment was continued till January, 1977. Fever subsided and cough was completely controlled. On admission his main concern was swelling on the back.

Examination—On examination, the patient was found to be a young man of average built and poor nutrition. Four to 5 lymph nodes of the size of a pea, non-tender and freely mobile were present in both the axillae. On examination of the back, a swelling used to appear after coughing in right interscapular area, which was 3″ × 3″ in size, soft and spongy in consistency, non-tender, with a positive cough impulse (Fig. 1). On pressure, the swelling used to disappear with a hissing sound. Due to this phenomenon it was difficult to interpret percussion note over the swelling. On auscultation over the swelling, crackling sounds were audible as in cases of surgical emphysema. Skin over the swelling was completely normal. Systemic examination revealed no positive signs.

Investigations—Haemoglobin —11 g. per cent, WBC—6400/c.mm. with polymorphs—51 per cent, lymphocytes —42 per cent and eosinophils—4 per cent. Complete urine examination revealed no abnormality. Sputum for AFB was negative, and ESR (corrected) was 16 mm./1st. hour.

X-ray chest showed evidences of infiltration in right upper zone. Posterior part of the 5th rib revealed irregular hazy lower margin with rarefaction of the lower half of the rib and thickening with sclerosis of the upper half of the rib. Fourth intercostal space was narrow. There was a linear area of radiolucency in the middle of the posterior part of the 5th rib (Fig. 2).

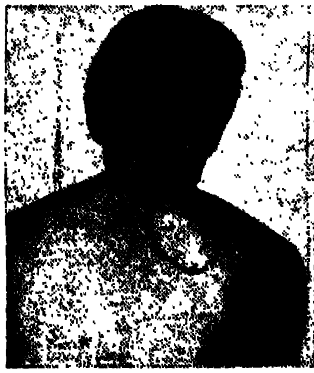

FIG. 1—SHOWING THE SWELLING IN RIGHT INTERSCAPULAR REGION

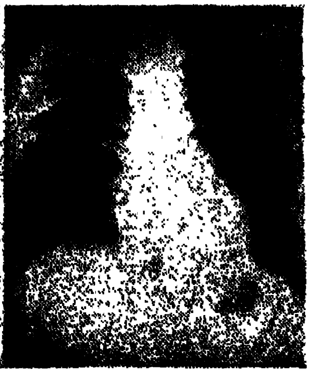

FIG. 2—SHOWING X-RAY CHEST (PA VIEW) WITH DISEASED RIGHT 5TH RIB

Surgery—The posterior part of the 5th rib found diseased and surrounded by granulation tissue with caseous material. The pleura was found to be intact throughout. There was an extrapleural intrathoracic pocket communicating through the space produced in the diseased rib with another extrathoracic pocket in interscapular region under the muscles of the back. Both were partially filled with granulation tissue and caseating material. There was no intrapleural collection of fluid.

Four inches of the diseased 5th rib were excised and the granulation tissue was curetted out from the extrapleural intrathoracic pocket. The extrathoracic pocket was excised and the wound was closed without any drain.

Biopsy· The biopsy report of the excised tissue showed changes characteristic of tuberculosis.

Follow-up—The patient was kept on antituberculosis treatment including streptomycin sulphate 1 g. IM injection daily, ethambutol hydrochloride 400 mg. (1 tablet) thrice daily and INH 300 mg. daily.

The patient is still coming for follow-up and at present is asymptomatic without any recurrence of swelling at the local site.

DISCUSSION

Due to characteristic reducible swelling present on the back in this patient, the strong possibility of herniation of lung was kept in mind. Herniation of lung through an abnormal aperture of the thoracic cage may be congenital or traumatic in origin and rarely the weakened area may be the result of inflammatory or neoplastic damage to the thoracic cage (Tayler *et al.*, 1962 ; Bidstrup *et al.*, 1966). In the present case, it was thought that the lung was herniating through a weak point in the chest wall on account of either a congenital defect in the rib or due to caries rib.

But on operation, it was found that the pleura was intact and no portion of lung was herniating out. Fifth rib was diseased and there were two pockets as already described. Whenever intrathoracic pressure used to increase, either due to cough or deep inspiration, the contents of the intrathoracic pocket used to shift to extrathoracic pocket, producing a swelling on the back. As soon as intrathoracic pressure decreased or the swelling was compressed the contents went back to the inner pocket leading to disappearance of the swelling.

SUMMARY

A young man presented with complaint of a painless reducible swelling on the upper part of the back for last 15 months. This swelling used to appear after coughing and was soft and spongy in consistency. X-ray chest revealed the changes suggestive of caries of the posterior part of the 5th rib. Provisional diagnosis of herniation of lung was kept in mind but on operation, an extrathoracic pocket communicating with another extrapleural intrathoracic pocket with diseased posterior part of the 5th rib was found. Diseased posterior part of the 5th rib was excised and the patient was put on antituberculosis treatment. Histopathological examination of the granulation tissue confirmed the diagnosis of tuberculosis. The patient responded to the treatment and there was no recurrence of swelling on follow-up.

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JOURNAL OF THE
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Chronic Obstructive Airway Disease

Chronic obstructive airway disease (COAD) is a common and increasing cause of disability and death in our aging population[1]. It includes disease like asthma, chronic bronchitis and emphysema in which there is chronic obstruction to airflow.

Asthma is characterised by intermittent attacks of airway obstruction which may follow a course lasting for months to years[2]. It is generally classified into two types : (1) extrinsic, which occurs in atopic subject, often dates from infancy to early childhood and frequently includes a history of eczema and multiple allergies ; (2) intrinsic, which is not related to atopy, is often associated with recurrent respiratory infections and usually develops in adults.

Chronic bronchitis is defined as a disease associated with excessive tracheobronchial mucus production sufficient to produce cough and expectoration for at least 3 months of the year for more than 2 consecutive years[3]. Here, the bronchial mucus glands are hypertrophied, the mucus secreting goblet cells proliferate and mucus production causes airway obstruction.

Emphysema is characterised, morphologically, by an increase in the size together with a destruction of the walls of the air space distal to the terminal bronchioles. Emphysema, however, cannot always be diagnosed clinically in early cases, when histological examination from biopsy is necessary. Emphysema may be primary, where cause is not definitely known, is often genetically determined. Half of homozygous individuals with antitrypsin deficiency (about 1 in 5000 births) will have such emphysema[4]. Secondary emphysema, usually, follows chronic bronchitis and asthma. Recurrent emboli in lung, particularly in young women on oral contraceptives, may also lead to secondary emphysema[5].

Clinically, the patients with chronic bronchitis initially have cough with whitish sputum, which after some years becomes yellow due to infection. The organisms responsible are *H. influenzae*, *Strept. pneumoniae* and *Staph. pyogenes.* From persistent infection, spasms of bronchi and bronchiole develop when the patient becomes dyspnoeic with audible wheeze. This stage is known as chronic obstructive or chronic asthmatic bronchitis. In emphysema, dyspnoea, inappropriate to age and level of exertion, is the initial symptom. The presence of a barrel chest with an increased anteroposterior diameter suggests advanced chronic obstructive airway disease.

It can be diagnosed by a simple bedside manoeuvre by timing the forced expiratory vital capacity (complete forced expiration following a maximal inspiration). Normally, the forced expiratory vital capacity should take less than 4 seconds. The expiratory time can be best determined by listening with a stethoscope over the trachea. A prolonged time is a useful clue for COAD[6].

Pulmonary function tests are useful both for diagnosis as well as in follow-up treatment and may detect COAD before clinical features develop for which spirometry is necessary. Measurements of forced expiratory vital capacity, forced expiratory volume in the first second (FEV_1) and the forced expiratory flow over mid 50 per cent of the vital capacity (forced expiratory flow 25 per cent to 75 per cent), also known as maximal mid-expiratory flow rate, can be readily accomplished[7]. By dividing the FEV_1 by the observed forced vital capacity, one can determine whether reduction in FEV_1 is out of proportion to the reduction in vital capacity which indicates airway obstruction. In asthma cases, pulmonary function tests show an obstructive pattern with definite bronchodilator improvement, whereas in chronic bronchitis bronchodilator improvement is moderate and in emphysema cases, negligible.

In a chest x-ray, PA and lateral views, taken in full inspiration and expiration, to show excursion of diaphragm which is decreased in COAD cases. In cases of emphysema, there is hyperinflation of lung with flat diaphragm and in bronchitis there is increase of bronchovascular markings and in asthma it may be normal. Cytological examination of sputum will show eosinophils and Charcot-Leyden crystals in asthma while neutrophils are found in bronchitis. Arterial blood gas analysis can detect mild to moderate hypoxaemia and hypercarpnoea indicating ventilatory impairment.

In management, as prophylaxis, avoidance of smoking and removal from a polluted environment are two important factors. Avoidance of dust and fog are important. The great killing of bronchitis patients in London fog of 50's are too well known. Contact with patients suffering from influenza or respiratory infections should be avoided. A high fluid intake of more than 3 litres per day is beneficial and it helps liquefaction of sputum and cleansing of airways. Nutritional status of the patient should be improved. A change of climate from a moist climate to a drier one is also beneficial to many. It is a common observation that patients remain well when removed from West Bengal to adjoining dry areas or to sea resorts.

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Bronchodilators are useful. Two groups of drugs are available, i.e., epinephrine like drugs and aminophylline like drugs. There is evidence that these two groups of drugs work at different sites in the adenyl cyclase-cyetic adenosine monophosphate system and appear to have a synergistic effect when used together[8]. β-stimulators, i.e., salbutamol has also bronchodilator effect without much side-effect on the heart. The bronchodilators can also be given by parenteral route in severe bronchial obstruction and oral treatment can be continued for months. Expectorants, i.e., glyceryl guaiacolate 5 to 15 ml. 4 times a day or solution of potassium iodide 10 to 20 drops 4 times a day help expectoration. In practice, however, they are incorporated in different respiratory tonics and bronchodilator preparations.

Antibiotics have got an important role in treatment of infection. In majority of respiratory tract infections, tetracycline hydrochloride, ampicillin or erythromycin in doses of 1 to 2 g. daily, usually, are effective and may be continued for 2-3 weeks. Addition of buttermilk and curd helps to minimise gastro-intestinal distress related to interference with normal intestinal bacterial flora. Addition of vitamin B-complex supplement will prevent glossitis. In recent years, trimethoprim and sulphamethoxazole combination is also used.

Corticosteroids are of major benefit in those individuals with attacks of intermittent bronchial obstruction or blood or sputum eosinophilia. A short course consists of an initial dose of prednisolone 60 mg. per day and gradually tapering in the next 7 to 10 days. In some cases, prednisolone in low doses of 5-10 mg., may have to be continued for long periods keeping in mind the possible side-effects, i.e., peptic ulcer, potassium loss, osteoporosis, etc.

Disodium cromoglycate is a recent addition in the therapeutic armamentarium. They act prophylactically by apparently preventing release of histamine from mast cells, the mediators of anaphylaxis. The drug is inhaled as a powder, released from a capsule in a special inhaler. It is indicated in patients with asthma, who in spite of a complete programme that usually includes steroids, complete to have bronchospasm. They are most effective in children with extrinsic asthma and have a steroid sparing effect. Medication through aerosol, i.e., bronchodilators and mucolytic agents, is also a useful method of relief for patients with COAD.

N. K. MAJUMDAR

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CURRENT TOPIC

Rickettsiosis in India : A Review

V. S. PADBIDRI*, N. P. GUPTA**

Typhus was one of the major causes of large scale mortalities during the first World War. However, the rigid application of DDT brought down the mortalities considerably during the World War II. The appearance of antibiotics and effective pesticides has since, brought this disease under control. All the same, this disease has not been wiped off completely. It continues to cause small or large outbreaks. The purpose of this review is to draw the attention of clinicians and medical practitioners to keep rickettsial diseases in mind when they are confounded with cases of pyrexia of unknown origin (PUO).

Ancient Indian literature has no reference to the presence of typhus or any allied disease in the country, a view that was shared by many of the early British medical officers.

EPIDEMIC TYPHUS :

The first authentic report of typhus in India came from Gooty in 1808 (Eyre, 1857), where 15 cases of typhus were admitted in His Majesty's Hospital.

Outbreaks of louse-borne typhus have been restricted entirely along the northern frontiers of the country. Wright (1883) described outbreaks in Saugar and Jabbalpore. In Peshwar, Hendley (1895) witnessed 9 epidemics during a 15-year-period. Two subsequent oubreaks in the same region were reported by Husband and MacWaters (1908).

Epidemiological studies in Jammu and Kashmir revealed that the earlier epidemics of 1927 and 1942-43 were caused by *R. prowazeki* (Hussain, 1945).

A similar outbreak during 1947-48 amongst the refugees of Jammu and Kashmir led to the isolation of 5 strains—3 from humans and 2 from lice pools (Kalra and Rao, 1949).

It is therefore safe to conclude that there is a continuous endemic belt running from Baluchistan across the Himalayan hills to the Kulu valley. A recent survey of Rajasthan State carried out by Virus Research Centre (VRC) in 1971 has revealed the presence of complement fixing (CF) antibodies against *R. prowazeki* antigen in the sera from people living in the irrigated tracts of Kota and Bundi (Menon *et al.*, 1974). Although the prevalence is low, this finding is of interest because the climate and clean habits of the people here are not ordinarily conductive for lice infestation.

MURINE TYPHUS :

During intensive studies in Simla Hills, *R. mooseri* was successfully isolated from wild rats (Covell, 1936a) and fleas picked off wild rodents (Covell and Mehta, 1936). A study in Bombay yielded 5 strains from man and one from rat (Savoor *et al.*, 1948). Other places where successful isloations were made, include Jabbalpore, Kashmir, Lucknow and Pune. In the Bangalore-Mysore region, isolations were made from a variety of sources—humans, fleas, rats and bandicoots (Kalra and Rao, 1951).

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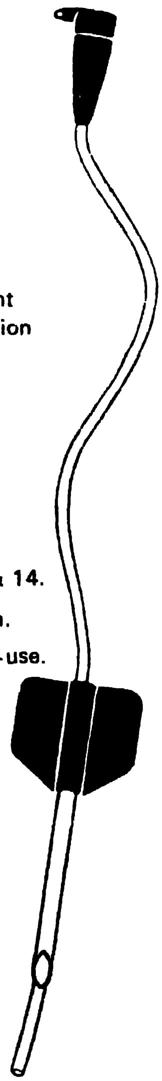

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Its continued presence in Pune was demonstrated by Raghunath (1972). His study in the Cantonment area yielded 14 strains from humans, rats and fleas and indicated that the disease was endemic, with peak incidence in April and May.

More recently, CF antibodies have been found in paired serum samples from cases of PUO encountered within the Pune city limits by VRC, indicating thereby, that there has been no change in the continued activity of this micro-organism in the larger cities.

Sporadic cases of murine typhus were reported from Lucknow (Bhatia, 1940), Mysore (Heiling and Naidu, 1941), Calcutta (Sanyal, 1957) and Golconda (Ali and Subrahmanian, 1957). Its presence in the villages of Karnal and Rewari was reported by Mathur (1954).

The active role of rodents in the maintenance of this rickettsia in nature was convincingly demonstrated by Stoker (1918). Besides finding the presence of CF antibodies in sera from rodents trapped in Bombay and Pune, rickettsial isolations were also made from rat fleas and pooled brains from rats and bandicoots.

INDIAN TICK TYPHUS :

The origin of tick typhus in India can be traced directly to Col. Megaw, for until he narrated his own experience the tick bite and his subsequent illness in 1917, clinicians were not aware of the presence of this condition in the country.

During the initial stages, cases of tick typhus were generally diagnosed as Rocky Mountain spotted fever (RMSF) because the pattern of illness was almost identical. Based on personal communications received from clinicians in various parts of the country, Megaw, (1925) put forth his view that tick typhus exists in India as a distinct entity.

The intensive isolation attempts by Kalra and Rao (1948a) at Kumaon Hills yielded 5 isolates from amongst the various tick pools from that region. Similar attempts at Naini Tal, however, were unsuccessful. Other successful isolations from ticks include the one from *Haemaphysalis leachi* var. *indica* at Imphal and *Ixodus ricinus* at Almora (Kalra, 1949). A strain isolated from *Rhipicephalus sanguineus* at Srinagar by Kalra and Rao, was sent to the Rocky Mountain Laboratory, Hamilton, USA, where it was shown to be more closely related to the Boutonneuse fever agent than *R. rickettsii*, but not exactly identical with either one (Phillip *et al.*, 1950). Isolations from humans have been successful in Jabbalpore, Srinagar and Pune

Serological evidence about the presence of tick typhus in India was provided by Topping *et al.* (1943). Sera from 3 suspected cases from Mysore were sent to the National Institutes of Health, Bethesda, USA, where CF tests performed, indicated that the causative agent had a close immunological relationship to *R. rickettsii.*

Reports about sporadic cases have come from various places. Keates (1922) described a case of RMSF at Murree. Megaw (*loc. cit.*) received personal communications about the presence of tick typhus in Nagpur, Hyderabad, Kanpur and Saugar. With the passage of time, cases were also reported from Allahabad, Narsapatnam, Ratlam, Secunderabad, Trichinapally, Bangalore, Jhansi, Naini Tal, Darjeeling, Pune and Lucknow.

In comparison with other tick-borne rickettsioses, data on the epidemiology of tick typhus in India are rather scanty. With this view in mind, VRC has undertaken certain epidemiological studies in Pune and Saugar. Preliminary reports based on the haemolymph test performed on ticks from these 2 areas, indicate tick typhus activity here (Padbidri *et al.*, 1977).

Q FEVER :

Reports of outbreaks of Q fever in India are scanty. An outbreak of Q fever the first to be recorded in the country was the one in Dehra Dun in 1940 wherein 400 cases were reported amongst the Gurkha troops stationed there (Kalra and Taneja, 1953).

The first fully documented case of Q fever was reported by Kalra and Taneja (1953). A small serological survey carried out by them indicated that even then, Q fever was present amongst the human and animal population of various States.

Knowledge about the activity of Q fever in India is based mainly on serological surveys, notably the following :

A survey of Bombay State during 1951-52 and the earlier one in 1949 indicated a low prevalence of Q fever amongst the human and cattle population (Soman, 1954a). Similar surveys unearthed its presence in Niligiris and Coimbatore districts of Madras State (Veeraraghavan and Sukumaran, 1954), Mhow (Pathak and Tanwani, 1969) and Haryana and Bikaner (Kulshreshtha *et al.*, 1974).

Detection of sporadic cases at the Military Hospital and Dairy farms at Pune induced Kalra and Taneja (1951) to undertake a survey of the major cities in India. Results revealed the involvement of both humans and domestic animals, the prevalence rates varying from 2.3 per cent in Pune to 16.6 per cent in Mysore.

Recently, the organism has been detected in and around Delhi. Analysis of positive sera revealed that the paediatric age group had the highest percentage of positives, implying thereby, that man gets exposed to this rickettsia at a very early age (Chaudhari *et al.*, 1971, 1972).

The public health problems posed by the presence of Q fever in the northern agricultural States of Haryana and Punjab, have been discussed by Randhwa *et al.* (1973).

Serological surveys carried out by VRC have indicated the presence of Q fever in certain other parts of the country. CF tests on animal sera from Dharwar and Bijapur districts of Karnataka revealed a very high prevalence of Q fever in this region. Of the 362 sera tested, almost half showed the presence of antibodies against the *C. burnetii* antigen. The public health problems posed as a result of the heavy tick infestation of these animals can never be emphasised more strongly (Joshi *et al.*, 1975).

In comparison, the infection rates amongst the various domestic animals in and around Aurangabad varied—37.5 per cent in sheep, 14.3 per cent in goats and 2.2 per cent in cattle (Menon *et al.*, 1975).

A survey of Rajasthan State by VRC revealed the presence of Q fever in all the districts covered during the study. CF antibodies were found in both human and animal sera from Kota, Jaipur, Jalore and Sirohi districts. The overall prevalence rates were 18.6 per cent in humans and 24.7 per cent in animals.

SCRUB TYPHUS :

In 1933, the Army Head Quarters (India) directed all its Laboratories to routinely employ the Weil-Felix test on sera from all cases of fevers. Results of one year's study revealed the presence of scrub typhus throughout the country, the seasonal incidence being from mid August to the beginning of October.

Scrub typhus came into prominence as a war disease in India, especially in the eastern regions. The rapid increase in incidence amongst the troops from 1942 onwards led to the formation of the Army Head Quarters Field Typhus Research Teams. Data compiled by its members run into 3 large volumes.

A comparatively mild outbreak of scrub typhus in South India was reported for the first time in 1945 (Koenigsfeld, 1945). Although the clinical features were not very distinct, 113 serologically proved cases were recorded. Swamy and Dutta (1958) point out that prior to the advent of troops in Jamshedpur in 1945, cases of typhus were not recorded. Subsequently, however, over 200 positive cases were reported annually, the diagnosis being based on the combined clinical and serological studies. Another outbreak at Sabathu in the Simla Hills was reported by Somaya and Athale (1957).

The Indo-Pakistan conflict of 1965 brought into sharp focus the endemicity of scrub typhus in this region. Small outbreaks were seen amongst the Indian troops operating in Sialkot sector (Rao, cited by Raghunath, 1971). An unusual outbreak in Punjab (Wanchoo *et al.*, 1973), stressed the fact that only after the deployment of susceptible people in various areas, are fresh endemic foci unearthed. The report of an outbreak amongst the Indian troops operating in the north eastern sectors during 1965-66 (Kochhar, 1972), indicates that endemic foci prevail in this region too.

Outbreaks where serological studies have aided in confirming the diagnosis, include the experiences of Tattersal and Parry (1945) and Menon and Sampath (1961) wherein outbreaks amongst a British Regiment in an area geographically adjacent to Burma and the experiences of a general Field Hospital are described.

Discussing the clinical features of a circumscribed outbreak in Muzaffargarh district of south west Punjab, Yacob (1937) could not find sufficient evidence to incriminate a vector. The typical primary eschar, however, left no doubt about the diagnosis.

That the *Tsutsugamushi* fevers of Japan and Malaya differ in no way from the similar condition encountered along the Indo-Burma border was amply proved by Tattersal (1945). On the other hand, Lal (1954) observed that low mortality and scarcity of the primary lesion were conspicuous features in the series of cases seen by him.

As a result of the widespread prevalence of scrub typhus in India, isolation attempts have been successful in a large number of cases.

A study by Mackie *et al.* (1946) along the Assam Burma border yielded isolates from 53 pools of trombiculid mites. They also proved that *R. orientalis* could be transmitted transovarially by *T. deliense*. The subsequent year Davis *et al.* (1947) recovered a total of 85 strains from a variety of sources in the same region—humans, trombiculid mites, rodents, experimental animals exposed in these areas, etc.

That even a metropolitan city like Bombay is not free from scrub typhus was revealed by the isolation of a strain of *R. tsutsugamushi* from a mouse (Savoor *et al.*, 1947). Successful isolations from humans were reported in the following year in 8 of the 16 cases investigated during the post-monsoon period. Results of an 8-year study indicated that 10 per cent of the sera tested showed agglutination against the OX-K antigen in the Weil-Felix test (Soman, 1954b). In all, this study yielded 22 isolations from humans but none from rodents or the vector mites.

The rodent involvement in the maintenance of scrub typhus cycle as Simla Hills was proved by Covell (1936b) when sera from wild rats showed agglutination against the OX-K antigen. Correlating the clinical and laboratory findings amongst cases occurring at Barrackpore, Krishnan *et al.* (1940) found that rickettsial isolations were successful in 71 per cent of the cases that were clinically typical but serologically doubtful.

Cases of scrub typhus in Madras Presidency that were confirmed serologically, have been included in the report of the King's Institute of Preventive Medicine, Guindy, for the year 1937. Based on results of the Weil-Felix test, the geographical distribution of mite-borne typhus in India includes Lahore, Meerut, Bengal, Assam, Burma and Deccan (Corson and Wilcocks, 1945). Reviewing previous records, Kalra and Rao (1948b) concluded that this condition had been endemic in Kashmir for quite a few years. Its presence in the United Provinces, notably Lansdowne, Jhansi, Nowgong, Mathura and Agra, was confirmed by Bardhan (1944).

Reports of sporadic cases include the presence of "Tropical typhus" in Bangalore (Biggam, 1932) and at the Indian Military Hospital at Calcutta (Lusk, 1945). Cases in the Karnal district of Punjab were recorded by Mathur and Suri (1953). Scrub typhus in Jammu province has been reported by Kalra and Suryanarain (1950).

Epidemiological studies in eastern Himalayas by Varma (1969) indicated the prevalence of *T. deliensis* and that the terrain had all the ecological factors contributing to the formation of typical "mite islands".

Using the Gilliam strain of *R. tsutsugamushi*, a serological survey of Rajasthan and Jammu and Kashmir States carried out by VRC revealed that the prevalence rates were 2.4 per cent and 3.5 per cent respectively. The survey in Rajasthan included Jaipur, Sirohi, Barmer and Jalore districts. Here the highest prevalence rates were in Barmer (4.81 per cent) and Jalore (5.3 per cent). These compared very well with the local topography, especially in Jalore where there is typical scrub vegetation and a high rodent population. In Jammu and Kashmir, the survey covered Srinagar, Baramulla and Jammu districts. The differences between the prevalence of positive reactors in these 3 districts is not significant. The low prevalence in the State may have been due to a strain variation.

In conclusion it might be pointed out that all the rickettsial diseases known to be pathogenic to man exist in the country. Epidemic typhus is seen in the form of outbreaks along the hilly terrain of the north western frontiers. Scrub typhus shot into prominence as a war disease along the Indo-Burma border. Extensive work done by the Field Typhus Research Team indicated the endemic nature of the condition there. Murine typhus has been shown to be present in most of the cities and larger towns where such studies have been undertaken. Cases of tick typhus were reported from rural areas as well as forests. Q fever has been shown to be more prevalent in the northern States. It therefore becomes imperative to consider rickettsial diseases in the differential diagnosis in cases of pyrexia of unknown origin.

SUMMARY

This article traces the history of various rickettsial diseases in India. Ancient literature has no reference to any typhus-like illness. Reports about the presence of these diseases began to appear only with the advent of British medical officers on the scene.

Outbreaks of epidemic typhus appear to be restricted to the northern regions of the Indian sub-continent, giv-

ing one the impression that there is an endemic belt running from Baluchistan, across the Himalayan hills to the Kulu valley.

Murine typhus has been shown to be present mostly in larger cities like Bombay, Pune, Jabbalpore, Lucknow, Bangalore, Kashmir and Simla. It's presence in most places has been shown by either isolating the agent or showing the presence of specific antibodies in sera from humans and rodents.

Tick typhus came to be recognised in India, only after Col. Megaw described his experience of the tick bite and the subsequent illness. He received personal communications about its presence from clinicians in different towns of the country. Isolation attempts from the vector were successful in Kumaon, Almora and Srinagar. Recent studies have revealed its presence in Pune and Saugar in Karnataka.

There are scanty reports about outbreaks of Q fever in India. Information about its presence in the country has otherwise been based on results of serological surveys. In fact every survey unearths new foci. Q fever has been shown to be present in Haryana, Punjab, Delhi, Rajasthan and various other places.

Although scrub typhus was reported in India much earlier, it came into prominence only during the Second World War, especially along the Assam-Burma border. As a result, a large number of isolates were obtained in this region from a variety of sources.

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NOTES AND NEWS

National Congress on Clinical Research

Under the auspices of K.E.M. Hospital and Seth G. S. Medical College Research Society Silver Jubilee Celebrations Committee, Bombay, the National Congress on Clinical Research would be held on November 17-19, 1978. The objectives of the Congress are (1) to bring together persons interested in clinical research, (2) to define areas of priority in clinical research in relation to our national needs, (3) to get assistance of experts to give guidelines about research activities in various fields of national interest and (4) to co-ordinate the activities of various agencies which promote clinical research. Further details may be had from Dr. B. C. Mehta, Secretary, National Congress on Clinical Research K.E.M. Hospital, Bombay 400 012.

Next M A.M S. Examination in February 1979

The next examination for membership of National Academy of Medical Sciences conducted by the National Board of Examinations will be held on February 5-6, 1979. Only medical graduates having the requisite qualification included in the first schedule of MCI Act 1956 are eligible to sit for the examination. Applications will be received till *15th November 1978* without late fee and till *30th November 1978* with a late fee of Rs. 50/-. List of the subjects in which the examination, will be taken may be had from the Secretary, National Board of Examinations, C 11/16, Ansari Nagar, New Delhi 110 016.

Bio medical Engineering Society of Gujarat

At a meeting of doctors, engineers and scientists held recently at the Physical Research Laboratory, Ahmedabad, it was decided to constitute the above Society to tackle the interdisciplinary area of bio-medical engineering now emerging in consequence of the growing sophistication of medical techniques and instruments. An *ad hoc* executive committee was formed with Mr. O. P. N. Calla as President and Dr. K. N Mankad as Hony. Secretary with the office of the Society located at 57 Swairvihar Society, Ahmedabad 15, Gujarat.

Bombay Orthopaedic Society

Under the auspices of the Society a course in 'Operative Orthopaedics Surgery' will be held in Bombay on November 14-21, 1978. The last date for applying for registration is *30-9-1978*. Application forms and other details may be obtained from: Dr. C. G. Pradhan, Secretary, Bombay Orthopaedic Society, Land Mansion, Maharshi Carvey Marg, Opp. Charni Road Station, Bombay 400 001.

Seminar on Engineering and Health Care

The above seminar sponsored by the Instrument Society of India will be held on November 11-12, 1978, at Mysore. Details about the topics to be discussed and registration fee, etc., for delegates may be had from Mr T. G. Krishna Murthy, Co-ordinator, Engineering and Health Care Seminar, Instrument Society of India, CISL Building, Indian Institute of Science, Bangalore 560 012.

VI MP State Ophthalmological Conference

The sixth annual conference of MP State Ophthalmological Society will be held at Bilaspur on October 1-2, 1978. The special features of the conference include Dr. Warley's Oration for 1977-78 and presentation of scientific papers on 'Eye diseases'. Detailed information may be had from Dr. R. C. Saxena, Organising Secretary, VI MP State Ophthalmological Conference, 52 PWD Bungalow, Link Road, Bilaspur, MP.

National Academy of Medical Sciences Announces Awards for 1977-78

The National Academy of Medical Sciences has announced the following medal/prizes for 1977-78:

(1) Dr. S. S. Mishra Memorial Bronze Medal plus cash prize—To be awarded for the best unpublished work in any field of biomedicine by a young biomedical scientist below 40 years of age.

(2) Sir Shriram Bronze Medal plus cash prize—To be awarded to a biomedical scientist of any age for his/her best published paper during the preceding 3 years on "Community Medicine" (community health, medical education and hospital administration). The work should have been done in India.

(3) Dr. R. N. Kashwal Prize Medal—To be awarded to the best worker of any age in the field of "Colon and Its Disease." The nominee should submit along with the paper complete bibliography on the subject including work done in India.

(4) Dr. Vimla Virmani Bronze Medal plus cash prize—To be awarded to a biomedical scientist aged below 45 years for his/her best work in the field of "Rehabilitation of the Neurologically Handicapped Patient", based on published or unpublished work with particular emphasis on applicability of the work to socio-cultural and economic considerations prevalent in the Indian community/communities.

Four copies of each paper nomination should reach the office of the Academy latest by *30th September 1978* with a forwarding letter giving brief biodata of the scientist along with the title of the medal/prize for which the paper/nomination is submitted. Details of other conditions may be had from the Executive Director, National Academy of Medical Sciences, C II 16 Ansari Nagar, New Delhi 110 016.

Doctor in the News

Dr. S. C Mitra, retired Professor and Head of the Department of Dermatology, Calcutta National Medical College, has been appointed Emeritus Professor by the Government of West Bengal. Dr. Mitra, who is President of the Calcutta Branch of IMA and has been elected President of the Bengal State Branch for 1978-79, is a member of the Journal Committee of IMA.

CORRESPONDENCE

The Editor is not responsible for the views expressed by correspondents

Role of Acupuncture Analgesia for Intractable Pain in Malignancy

SIR,—Acupuncture analgesia or traditional Chinese anaesthesia is the talk of the day. The Chinese claim this as being based on scientific and methodological background, but it remained unacceptable to the Western world for a pretty long time. Recently, two papers on acupuncture therapy (Basu, 1973 ; Shrivastava, 1975) were published in your esteemed journal stating effectiveness and providing scientific explanation in terms of neurophysiology.

With the help of current literature and some guidance from the visiting professors, a start has been made for using this art for analgesia purposes only in the Department of Anaesthesiology, M. D. University, Medical College, Rohtak, for common ailments like intractable pain and neuralgia, etc.

Here is presented a case report of successful management of intractable pain. The patient was a 40-year-old lady with carcinoma breast (grade IV, inoperable) who was in great agony. All types of analgesics and narcotics in very heavy doses were tried but failed. She had lost virtually all her faith in medical science and wanted to commit suicide.

To find out the pain threshold, algesimetry was done by means of painful stimuli (electrical/mechanical) for getting confidence and co-operation of the patient, a detailed evaluation of her personal psychological and socio economic status was made, as this was considered to be very vital for proper success of the technique. Details of the procedure regarding duration and number of sittings, size and number of needles, the pain created by the needles themselves were explained to the patient and her family and written consent was obtained. Because of non availability of ideal needles, eight (25 SWG) needles were inserted at different points, four of which were proximal and four distal as follows: Proximally (1) Anterior axillary fold, depth of needle 0.5 cm., (2) nipple, up to a depth of 0.5 cm., (3) 5th intercostal space on affected side behind nipple, depth 1.2 cm (4) maximum tender point, 0.5 cm. Distally—(5) In between 1st and 2nd metacarpal bone of hand, depth 0.5 cm. (6) snuff box, depth 0.3 cm., (7) ear lobule, depth 0.3 cm. and (8) nape of the neck, depth 0.5 cm. The number of points was 1 in each site and duration was 30 minutes.

The patient was given a total of 8 sittings on alternate days. By the 4th sitting, over 70 per cent of pain was relieved and total intake of narcotics was also decreased. By the end of the 8th sitting, 90 per cent of pain disappeared. This lasted for a period of 6 months.

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17/9J Medical College
Enclave, Rohtak,
Haryana.

CHANDRA VIR SINGH, D.A.,
M.S. (Anaesth.),
Lecturer

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Onion in Prevention of Atherosclerosis

SIR,—Onion has been shown to prevent alimentary hyperlipaemia (Gupta *et al.*, 1966 ; Jain, 1971 ; Bordia *et al.*, 1974). The present study was carried out on healthy human volunteers to determine the effect of onion on serum cholesterol, serum triglycerides, serum alpha and beta lipoproteins and serum phospholipids during alimentary hyperlipaemia.

Five healthy male medical students were subjected to detailed history, physical examination and relevant investigations to rule out the possibility of any associated disease. The fasting blood sample was collected for above lipid parameters. The individuals were then fed with a breakfast (100 g. of butter with 4 slices of bread, 2 teaspoonfuls of jam and a cup of tea). Blood samples were again collected for above investigations 4 hours after the breakfast. On another day, similar procedure was adopted on the same volunteers but along with the above breakfast, each one was served with *bhajiyas* (*pakoras*) made of onion (100 g.) and blood samples collected 4 hours later.

The estimation of lipid factors mentioned above was done on every sample of blood. The person analysing the blood sample was not aware whether onion was given along with fatty breakfast. The results were tabulated and analysed statistically (Table 1).

TABLE 1—SHOWING EFFECT OF ONION ON VARIOUS LIPID FACTORS IN ALIMENTARY LIPAEMIA

Investigation	A		B		Comments
	Fasting	Butter	Fasting	Butter + onion	
Serum cholesterol (mg.%) :					
Mean	167.4	177.6	169.0	174.8	No significant change between A and B (P > 0.05)
S.D. ±	8.8	8.4	7.3	7.9	
P value *	-	> 0.05	—	> 0.05	
Serum triglycerides (mg.%) :					
Mean	101.8	255.4	100.0	117.0	Significant reduction in B *versus* A (P < 0.01).
S.D. ±	8.7	33.5	7.3	4.1	
P value *		< 0.01	—	< 0.05	
Serum beta lipoproteins (%) :					
Mean	59.6	74.8	61.4	64.0	Significant reduction in B *versus* A (P < 0.01)
S.D. ±	2.4	2.1	2.4	2.1	
P value *	--	< 0.01	—	< 0.01	
Serum phospholipids (mg.%):					
Mean	6.8	8.4	6.9	6.9	Significant reduction in B *versus* A (P < 0.01)
S.D. ±	0.4	0.4	0.4	0.4	
P value *	-	< 0.001	—	> 0.01	

*The P values after butter (A), butter + onion (B) reveal the significance of alteration in values when compared to respective fasting values

As can be seen, there was no significant rise in serum cholesterol levels following fatty meal. Addition of onion also did not make significant alteration in serum cholesterol levels. However, serum triglycerides, serum beta lipoproteins and serum phospholipids were significantly elevated after fatty meal and their rise was significantly inhibited by onion. The alterations in alpha proteins were opposite to those seen in beta lipoproteins.

The active principle of onion contains allyl propyl disulphide. The protective action of onion on fat induced hyperlipaemia suggests that the sulphur compounds may be used as anti-atherogenic agents.

We are, etc.,

Upgraded Department of
Medicine,
B. J. Medical College,
Poona 411001

G. S. SAINANI, M.D., F.R.C.P.,
PH.D., F.A.C.P., F.A.C.C.
D. B. DESAI, PH.D.
P. G. SAINANI, M.B.B.S.

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REVIEWS

Principles of General Anatomy—By Asim Kumar Datta, 1977, K. P. Basu Publishing Co., Calcutta, 21.7 cm. × 14 cm., pp. xi + 210, Rs. 25.25.

Of the indigenous medical books published in recent years Dr. Datta's "Principles of General Aanatomy" is written with force and clarity and the text is liberally illustrated by small and simple line drawings. This small book tackles a large subject and for the most part does so successfully. It is brief and well organised.

Broadly speaking, the book comprises three parts. The first one deals with cytology which is short but informative. This is followed by an account of the tissues of the body (histology) which is adequate for undergraduate medical students. The remainder of the book deals with the important introductory portions of the cardiovascular system. Each chapter is made attractive with the inclusion of function as and where necessary.

However, the presentation lacks human genetics and a list of current references.

The price is modest and the book can be confidently recommended widely as both fascinating and instructive to the undergraduate medical students.

K. K. Banerji

Practical Nursing—By Margaret Clarke, 12th ed., 1977, Bailliere Tindall, London, 18.3 cm. × 11.7 cm., pp. xi + 284, price not mentioned.

The author in this edition of the book has given much importance on practical nursing than discussing the theoretical aspect which is practically needed by the student nurse in her examination, in day-to-day ward work and also when she comes out as a successful trainee nurse after completion of her course in the professional field In various chapters the author has discussed the ethical aspect of nursing and the dealing of the nurse with the ailing patient, the relatives of the patients and also other personnel concerned with the health care in and out of the hospital frame-work. As a teacher for many years in the nursing, I appreciate the way the author has compiled the chapters, giving importance to practical works. I think this book will help all those who are attached with teaching of the nurses and more so the student nurses and also the practising nurses.

Bijon Chakraborty

Hand Book of Food and Nutrition—By M. Swaminathan, 1977, Ganesh & Company, Madras, 21.4 cm. × 14 cm., pp. viii + 288, Rs. 12.00, £2.00, $5.00.

This small volume is intended to be an elementary textbook for undergraduate students of agriculture, home science and nutrition and dietetics. It is also hoped to be useful for practising physicians, paediatricians, dietitians, nurses and workers engaged in public health and community nutrition activities. The author has made an admirable attempt to present much useful informations in its pages but the material appears to be too condensed for the comprehension of a beginner. It is written in simple language but the statements are at places, vague (example—vitamin A deficiency and vision). The treatment suggested for vitamin A deficiency is not in accordance with the recent (1976) WHO recommendations. Protein calorie malnutrition is most casually discussed in only one page (about 300 words). Nutritional anthropometry has been very inadequately treated and subclinical deficiency states and biochemical signs of deficiency diseases are not considered at all. In some places, kilocalorie (kcal) is written as Kcal and elsewhere as KCal ; the conversion factor for kcal into joule is given but the definition of joule is not available. There are only some of the defects of the book but despite its limitations, the book is likely to serve as a pre-examination revision manual to the informed student.

A. K. Bhattacharyya

OBITUARIES

Dr. Kedar Nath Ghosh

Dr. Kedar Nath Ghosh, an active member of the Tripura State Branch of IMA, passed away on 29-6-1978. Born on 1-4-1912 in Dacca (now in Bangladesh). Dr. Ghosh qualified for the profession from Dacca Mitford Medical College and Hospital. After serving as an RMO at Mitford Hospital he joined service in the Tripura State as a medical officer. He served in different subdivisional hospitals in the State and worked as RP at V. M. Hospital, Agartala, before his appointment as Malaria Officer under the National Malaria Eradication Programme. He was connected with the activities of the IMA at Agartala since its inception. He was also associated with the Indian Red Cross Society. He leaves behind his wife, a daughter and a son.

Dr. Kedar Nath Ghosh

Dr. (Mrs.) R. F. Daniel

Dr. (Mrs.) R. F. Daniel

Dr. (Mrs.) Rose F. Daniel (Kalidas), member of the Dhulia Branch of IMA in Maharashtra, passed away on 25-6-1978 following a tragic car accident in which she was involved while on her way to Amaravati to attend the funeral of her demised sister. Born on 21-11-1928 she received her school and college education at Nagpur and Lucknow. She did her M.B.B.S. in 1949 from Christian Medical College, Vellore and the same year joined the Suvarta Memorial Hospital. She served this hospital with dedication till the closing days of her life. She leaves behind her husband, Dr. R. F. Daniel and two daughters.

Dr. (Mrs.) H. B. Francis

Dr. (Mrs.) H. B. Francis, a member of the Nilgiri Branch of IMA, passed away on 20-5-1978 at Coonnoor. Born on 17-1-1904 Dr. (Mrs.) Francis graduated in medicine from the Christian Medical College, Vellore, in 1930. After graduation she worked for some years in Ongole and later joined the Tamil Nadu Medical Service. As a medical officer she worked at Tiruputtur, Coonnoor, Salem and Gudalur. On retirement she settled down at Coonnoor and set up private practice.

SUPPLEMENT

VOL. 71, NO. 4: CALCUTTA: AUGUST 16, 1978

Assoctation Notes

Papers Invited for Annual Academic Session of IMA College of GPs

The annual Academic Session of the IMA College of General Practitioners will be held at Cochin on December 27-28, 1978, during the 54th All-India Medical Conference. The theme of the Session is "Modern advances in drug therapy and modern advances in diagnostic techniques". Dr. P. C. Bhatla, Dean of Studies of the College, have requested the members who wish to present papers at this session to indicate the titles of the same early to enable the organisers to finalise the programme well in advance. The College proposes to publish all these papers in the form of a book under its Continuing Education Series, informs Dr. Bhatla. Detailed information regarding the topics on which papers may be presented and the preliminary programme for the session will be available on request from the IMA College of GPs, IMA House, Indraprastha Marg, New Delhi 110 002.

III All-India Examination for Fellowships of IMA College of GPs

In course of a notification issued in connection with the 3rd All-India Examination for Fellowship of the IMA College of GPs, Dr. P. K. Banerjee, Hony. Secretary of the College, informs:

The Examination will be held on October 14-16, 1978. Candidates intending to sit for the Examination may kindly note the particulars given below.

Eligibility:

1. Fresh graduates, who become members of the College, are eligible to appear in both Part I & II of the Examination. Fee Rs. 250/-. If successful, they will be conferred Fellowship on completion of 2 years of membership of the College.
2. Graduates/Licentiates within 5 years of graduation. Fee Rs. 250/-.
3. Graduates/Licentiates between 5—20 years of graduation. Fee Rs. 250/-.
4. Graduates/Licentiates over 20 years of graduation. Fee Rs. 350/-. Such of these candidates, as fulfil the requirements, can ask for waiving a part of written examination.
5. Candidates who will reappear will have to pay fees in the following manner:

Practical (Part II) only	—	Rs. 100/-
Part II plus one written paper	...	Rs. 150/-
Part II plus two written papers	—	Rs. 200/-
Part II plus three written papers	—	Rs. 250/-

Centres: Centres will be opened wherever 10 candidates duly registered at predetermined centres will be available.

Prospectus: Prospectus containing detailed instruction is available from the IMA Headquarters against Postal Order of Rs. 5/- only.

A Fellowship Fee of Rs. 500/- and the Examination Fee as mentioned above must accompany each Registration Form.

Branch Notes

ANDHRA PRADESH STATE BRANCH

Bhimavaram Branch—The branch conducted a health check-up of the local people at Lankapet, a very backward area, on the request of the Leon Club of Bhimavaram. Dr. I. Suryanarayana Rao, Hony. Secretary and Dr. G. Sundararama Raju, Chairman, Building Committee of the branch, examined and treated the children of elementary class. On 10-11-77, the Deevali Day, Dr. A. Ramakrishna Raju, President, inaugurated a tennis tournament organised for the members. Among the members participating in the tournament Dr. I. V. K. Jagga Reddy and Dr. S. Ramakrishna Raju emerged as the winner and runners up respectively. Dr. V. Ramakrishnam Raju, Chairman of the Sports Committee, thanked the members for their enthusiasm and Dr. I. Suryanarayana Rao gave away the prizes.

On 11-11-77 at a scientific meeting presided over by Dr. A. Ramakrishna Raju, Dr. V. Satyaprasad Rao from Brooklin, New York, spoke on 'Current concept of medicine in UK and USA'. Dr. S. Ramakrishna Raju, Jt. Secretary, introduced the speaker and Dr. K. Suryanarayana Murthy proposed the vote of thanks.

Hyderabad City Branch—At the general meeting held on 9-10-77 the following were elected office-bearers for 1977-78:

President—Dr. B. K. Sahay; Vice-President—Dr. R. M. Saboo; Hony. Secretary—Dr. R. N. K. Bhargava; Members of Managing Committee—Drs. Narendra Swarup, S. N. Jain, S. N. Mathur, Nandan Singh, B. P. Modi, Balbeer Singh Yadav, Kaujiram Moorjani and G. Gowri Shankar; Members of State Council—Drs. Vinod Chandra, B. L. Vigg, Anantesh Itgi, S. G. Kanade, J. W. Aurangabadkar, B. Ramalingam, V. L. Pahade, V. K. Phadke, K. Thirupathayya, Anand Abkari and Navin Savla; Members of Central Council—Drs. Surya Prakash Jaiswal, Ambadas Kulkarni, R. B. Davare, S. R. Jahagirdar, Amarnath Deshpande and G. Shyam Sunder.

At another meeting of the Managing Committee held on 24-10-77 Dr. Balbeer Singh Yadav and Dr. G. Gowri Shankar were elected Joint Secretary and Treasurer, respectively.

MADHYA PRADESH STATE BRANCH

Gwalior Branch—At a general meeting held on 16-10-77 the following office-bearers were elected for 1977-78:

President—Dr. B. K. Dhir; Vice-President—Dr. S. K. Rastogi; Hony. Secretary—Dr. O. N. Kaul; Jt. Secretary—Dr. B. P. Purohit; Members of Executive Committee—Drs. Ajai Shankar, (Mrs.) P. Olyai, R. K. Chhaparwal, Dharamveer, A. M. Saxena, K. B. Kulkarni and R. B. Goyal; Auditors—Dr. Dharamveer and Dr. R. K. Nigam.

Kawardha Branch—During the year 1976-77 the branch conducted medical examination of primary school children and treated nearly 400 of them besides immunising them against smallpox, diptheria, whooping cough and tetanus. Taking active part in the Family Welfare Programme launched with the assistance of the PHC at Kawardha, members of the branch performed the highest number of family planning operations in the district. A polio drop distribution centre was also started by the branch in collaboration with Lions Club, Rajnandgaon. Dr. R. K. Mishra, President of the State Branch, Dr. L. P. Khare and Dr. G. C. Sipaha attended some of the monthly meetings held during the year.

KARNATAKA STATE BRANCH

Hassan Branch—The annual general meeting was held on 9-10-77 at the District Tuberculosis Centre with Dr. B. H. Raju in the chair. Placing his report the Hony. Secretary Dr. H. D. Indrakumar announced the award of rolling shield by the State Branch to Hassan Branch on its being adjudged the best branch in the State for the community health activities during the year 1976-77. The shield which was presented on the 44th State Medical conference held at Mysore, was exhibited before the members. The Hony. Secretary also informed the members that Government had selected the President or alternatively a representative from the branch to serve as a member of the Board of Visitors for the S. C. Hospital, Hassan for a period of three years. The house heard Dr. C. A. Janardhana's report on the incident that took place in the S. C. Hsopital when several doctors were humiliated by a group of students and decided to bring the true episode to the notice of the press, the Board of Visitors and the State Branch of IMA for necessary action. The President Dr. B. H. Raju thanked all the members and voluntary organisations for their cooperation which made it possible for the branch to win the rolling shield. Earlier a talk was given by Dr. Narayanappa on 'Corticosteroids in general practice'.

The following were elected office-bearers for 1977-78: President—Dr. A. Narayana Rao ; Vice-Presidents—Drs. N. Kashinath, A. C. Munivenkategowda and K. Doddegowda ; Hony. Secretary—Dr. C. A. Janardhana ; Jt. Secretaries—Dr. P. S. Hegde and Dr. M. G. Prasad ; Members—Drs. M. Narayanappa, B. Marihonnaiah, G. Sarojamma, A. R. Shankar, A. S. Narayanasetty, A. S. Bhojappa, H. N. Thimmasetty, Varadegowda, B. G. Rajashekhar, D. K. Mohandas Shetty, P. Krishnmurthy, D. K. Shivappa and B. Nagappa ; Members of State Council—Dr. B. N. Venugopal and Dr. B. H. Raju ; Member of Central Council—Dr. B. K. Hegde.

Hubli Branch—The branch was awarded the Shimoga Branch Silver Jubilee 1973 Rolling Trophy on being adjudged the best branch in Karnataka for the 1976-77. Sri Raj Narain, Ex-Union Minister for Health and Family Welfare, presented the shield at the Karnataka State Medical Conference held at Mysore where it was received by Dr. (Mrs.) Kalliampurkar, President and Dr. Udayraj T. Runwal, Secretary of the State Branch.

Hukkeri Branch—The branch organised a free consultation and treatment camp at Sankeshwar on 30-10-77 in cooperation with the Health and Family Welfare Department and JMC, Sankeshwar. Dr. I. S. Patil, physician and Dr. R. K. Sharma, orthopaedic surgeon, both from J. N. Medical College, Belgaum, attended the camp which benefited about 132 persons. During the month of October 1977 in cooperation with the Health and Family Welfare Department the branch arranged for administering free triple antigen to 1032 children, DT to 736 children and polio vaccination to 128 children.

TAMIL NADU STATE-BRANCH

Ambattur-Avadi Branch—At the annual meeting held on 30-9-77 the following were elected office-bearers for the year 1977-78:

President—Dr. P. Ratnamuthu ; Vice-President—Dr. S. K. Bhat ; Hony. Secretary—Dr. K. Abdur Razaq ; Treasurer—Dr. (Mrs.) P. Saroja ; Member of Central Council—Dr. (Mrs.) R. N. Ramamani.

Coimbatore Branch—At the annual meeting held on 25-9-77 the following were elected office-bearers for 1977-78:

President—Dr. T. K. Ganesan ; Vice-President—Dr. G. Thiagarajan ; Hony. Secretary—Dr. S. Sankaranarayanan ; Jt. Secretary—Dr. R. Sangameswaran ; Treasurer—Dr. P. R. Subbian ; Members of Central Council—Drs. S. G. Rajaratnam, N. K. Sampath and M. P. Jesudasen.

Cumbum Valley Branch—At the annual meeting held in October 1977 the following were elected office-bearers for 1977-78:

President—Dr. J. Jayaprakash ; Vice-President—Dr. N. Velraj ; Hony. Secretary—Dr. H. Sripad Rao ; Jt. Secretary—Dr. P. L. Inbamuthiah ; Treasurer—Dr. G. Krishnaswami ; Member of Central Council—Dr. H. Sripad Rao.

Madurai Branch—At the annual meeting held on October 1977 the following office-bearers were elected for 1977-78:

President—Dr. S. V. K. S. Thangarajan ; Vice-President—Dr. N. Subbiah ; Hony. Secretary—Dr. N. Rajasekharan ; Treasurer—Dr. R. Alagappan ; Members of Central Council—Drs. N. Rajasekharan, K. A. Ramalingam, N. Subbiah, T. Subramanian and S. V. K. S. Thangarajan.

Ranipet Branch—At the annual meeting held in October 1977 the following were elected office-bearers for 1977-78:

President—Dr. E. Basker ; Hony. Secretary—Dr. P. S. Raghavan.

Salem Branch—At the annual meeting held on 16-10-77 the following were elected office-bearers for 1977-78:

President—Dr. R. Krishnaswamy ; Vice-President—Dr. S. Ramadas ; Hony. Secretary—Dr. S. Nagarajan ; Jt. Secretary—Dr. Padma Muthukrishnan ; Treasurer—Dr. C. Chennakrishnan ; Secretary, Building Committee—Dr. K. P. Govindarajan ; Members of Executive Committee—Drs. S. R. Rajaram, J. Sugavanam, N. Rajan, Kirupa, B. Marichetty and Nainamalai ; Members of State Council—Drs. R. M. Krishnan, J. Sugavanam, S. Ramadas, B. Marichetty, V. Muthukrishnan and K. P. Govindarajan ; Members of Central Council—Dr. S. R. Rajaram and Dr. Nainamalai.

The following were elected members of the Building Committee: Drs. J. Sugavanam, K. R. Lavakumar, S. M. Vasudevan, R. M. Krishnan and Dhinakar Rajarathanam.

Tirunelveli Branch—At the annual meeting held on 9-10-77 the following were elected office-bearers for 1977-78:

President—Dr. R. Subramanian ; Vice-President—Dr. A. Viswanathan ; Hony. Secretary and Treasurer—Dr. C. Radhakrishnan ; Members of Central Council—Dr. K. Ramachandra Naidu and Dr. (Mrs.) S. Hymavathy.

45th Karnataka State Medical Conference: Bagalkot: 1978

The 45th Karnataka State Medical Conference will be held at Bagalkot on October 14-15, 1978, under the auspices of the Bagalkot Branch of IMA, Karnataka. The conference will be inaugurated by the Chief Minister of Karnataka, Sri Devaraj Urs. Sri M. Mallappa, Karnataka's Minister for Health and Sri R. S. Patil, Minister for Labour and Excise, have also been invited to attend the conference. Members of IMA in Karnataka are requested to contact Dr. Rajasekhar K. Kanthi, Organising Secretary, 45th Karnataka State Medical Conference, Kanthi Nursing Home, Bagalkot, Karnataka, for detailed information.

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References

1. Bushby, S. R M (1969), Postgrad Med J, 45, Nov. Suppl. 10
2. Hitchings, G. H., ibid. 7
3. Schwartz, D. E. et al, ibid. 32,

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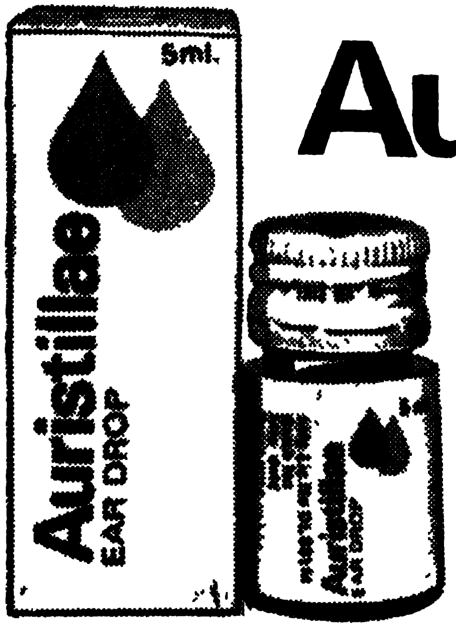

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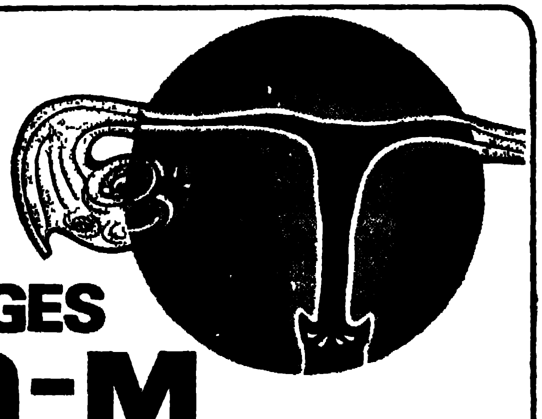

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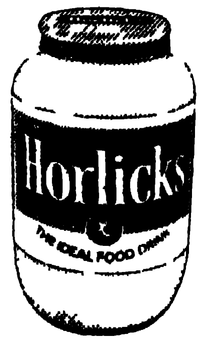

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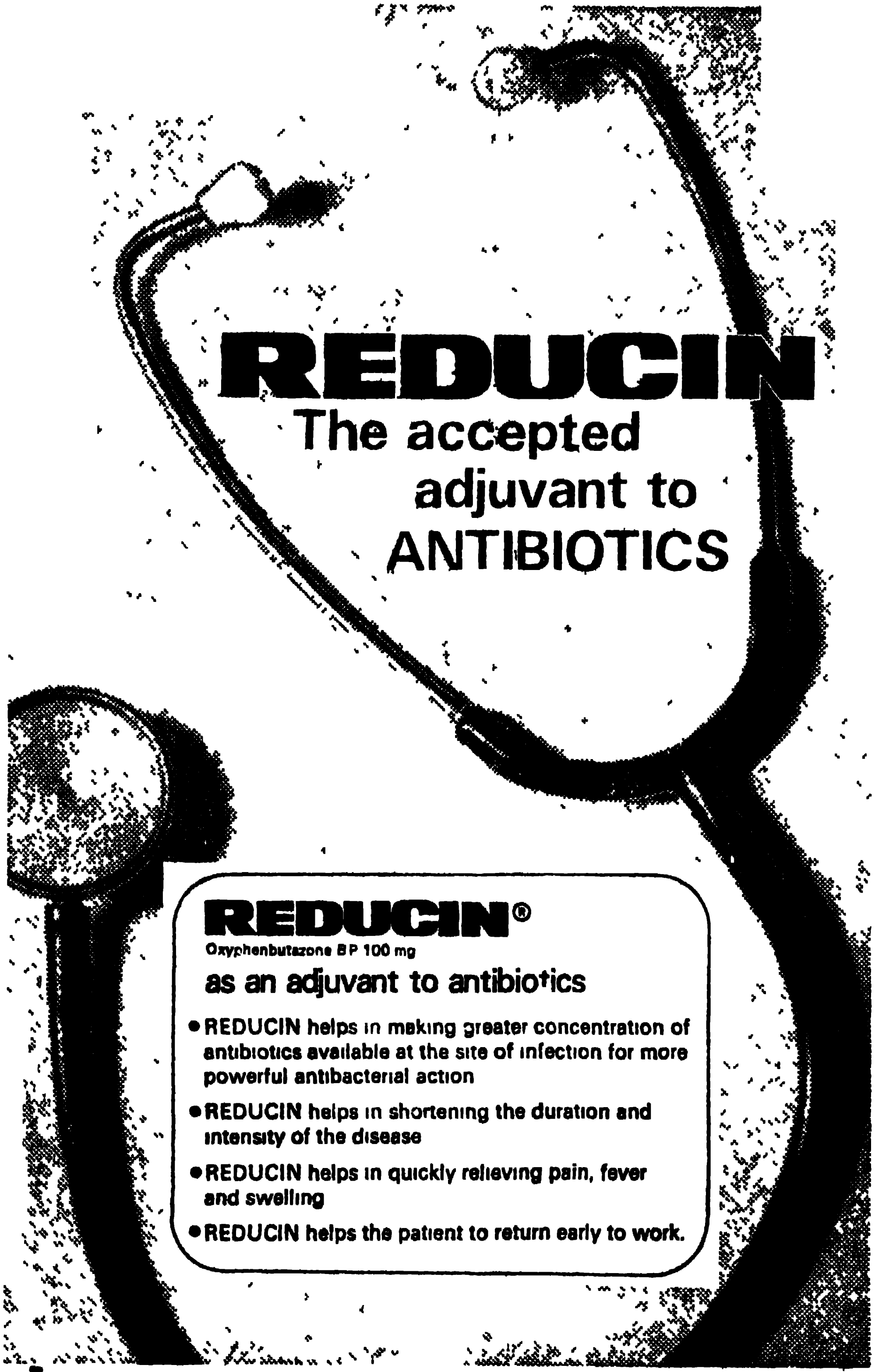

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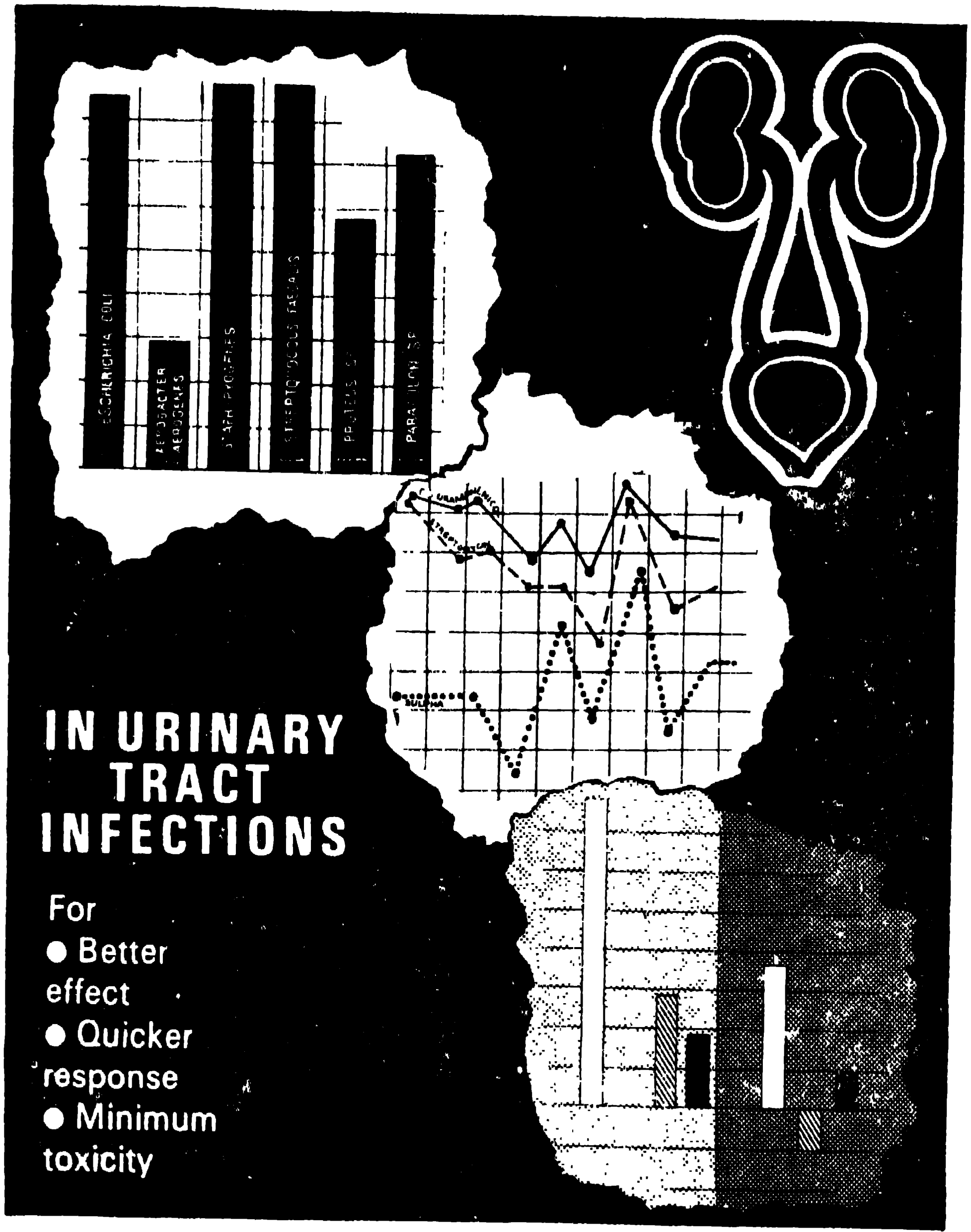

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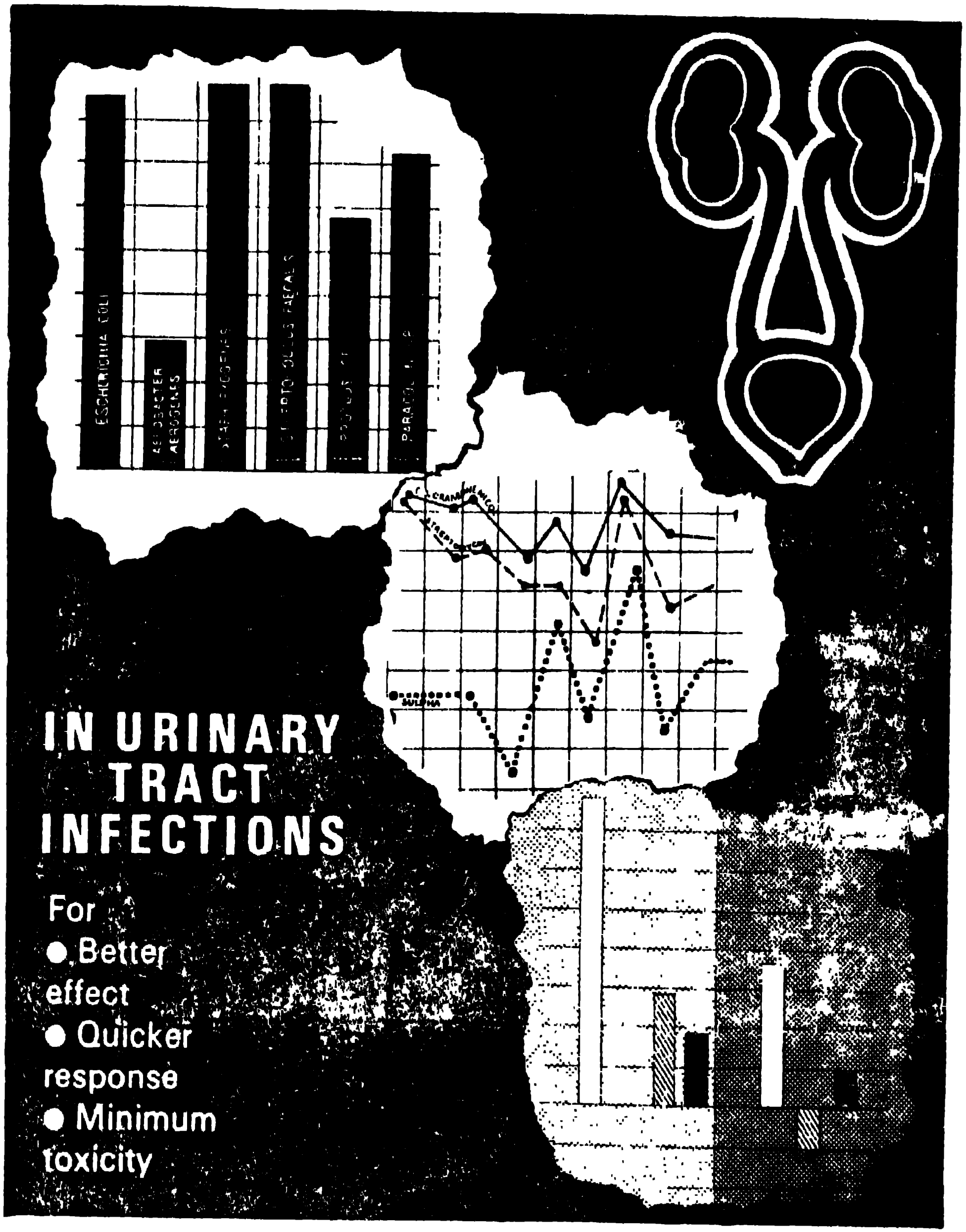

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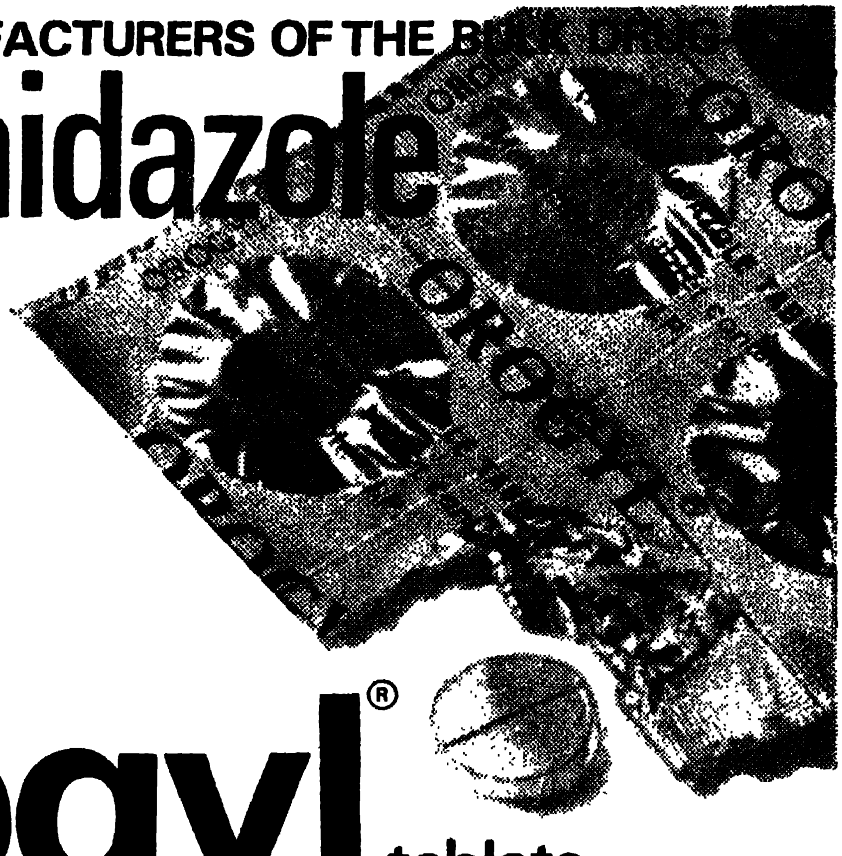

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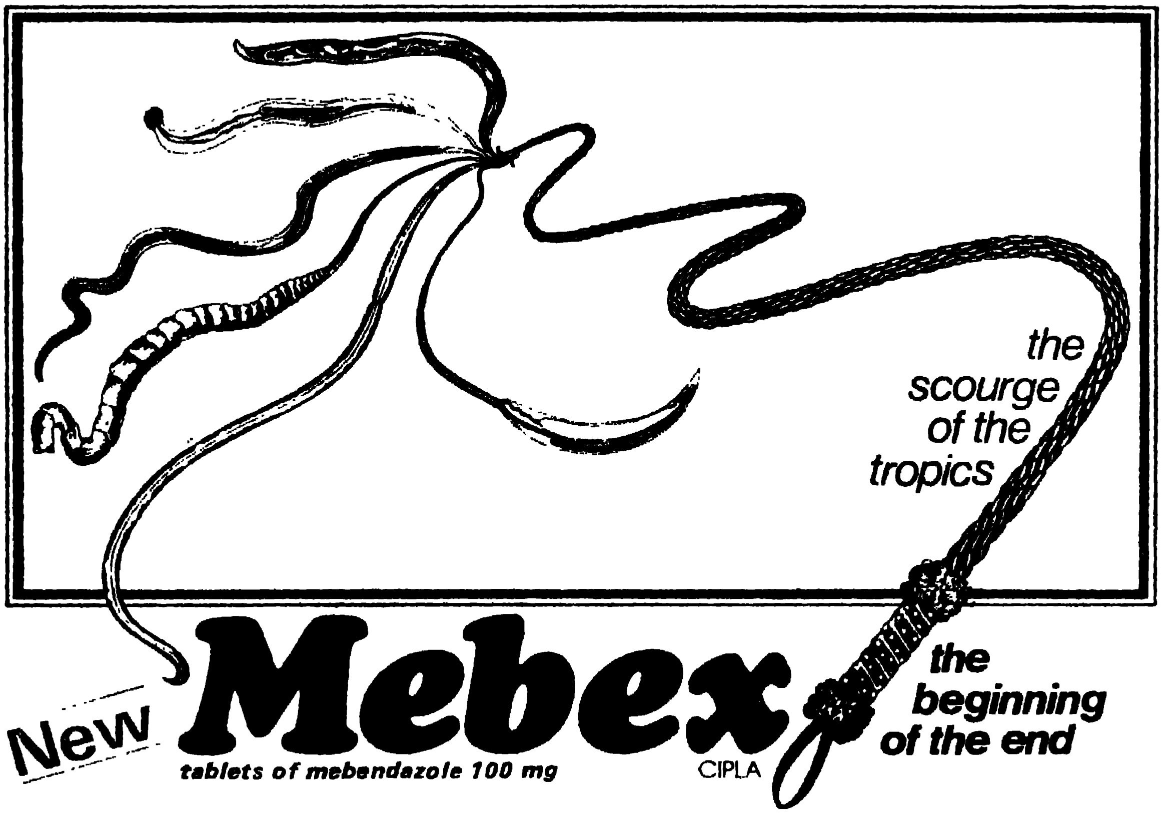
the scourge of the tropics
the beginning of the end

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tablets of mebendazole 100 mg

CIPLA

To the lay mind, the term "Scourge of the Tropics" might appear an exaggerated description of the problem of helminthiasis in India. To the practised professional eye however, the phrase vividly portrays the endemic extent of this insidious condition.

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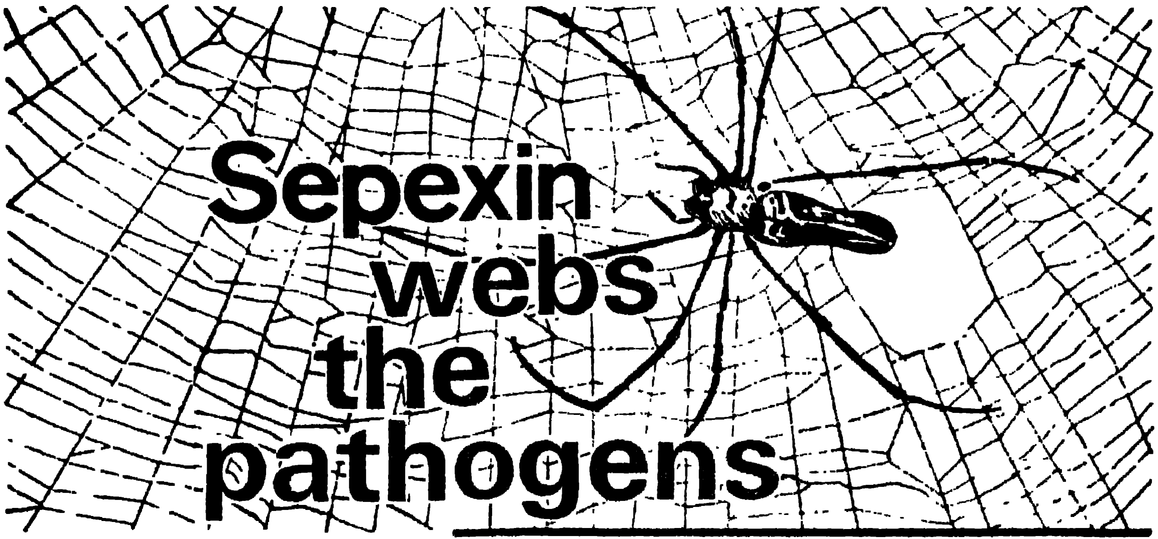

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- ❋ *Van Os, W.A.A , P.E.R Rhemrev, L. Bomert & E.W. Loendersloot, (1975). Experience with the Combined Multiload Cu250 Contraceptive Report from St Elisabeth's Hospital, Haarlem, the Netherlands.*
- ❋ *Pas, H. van der. M. Thiery, W. van Os, H van Kets, N. Dombrowicz, P. Tauber & W. Boogers, (1976), Paper on 41. Meeting of the Deutsche Gesellschaft für Gynäkologie und Geburtshilfe, Hamburg (Germany). 28 Sept - 2. Oct.*

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- ❋ *Van Os, W A A , P E R Rhemrev, E W Loendersloot & L. Bomert (1976), The combined multiload copper IUD (MLCu250) VIII World Congress of Gynecology and Obstetrics, Mexico, D F 17-22 October, International Congress Series, Abstract no 503*
- ❋ *Thiery, M , H van der Pas, W van Os, H van Kets, P Rhemrev, E W Loendersloot, J J. Amy and N Dombrowicz (1976), Inert or Copper-IUDs? T Geneesk , 32, 1117 1119*

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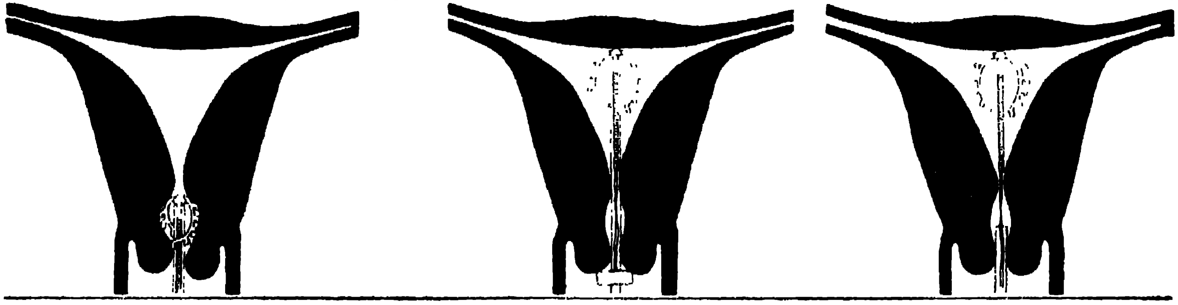
Cramp and bleeding are rare after the first months of insertion. No perforations have been reported to date.

- ❋ *Van Os, W , M Thiery, H van der Pas, P. Rhemrev, F Kosasih, H van Kets, J J Amy and N Dombrowicz (1976) The combined multiload copper IUD (MLCu250) Proceedings of 1st Inter-Congress Asian Federation of Obstetrics and Gynaecology Singapore, 27-30 April, Eurasia Press, Singapore, Vol II 217-220*
- ❋ *Thiery, M , H van der Pas, W van Os and H van Kets, (1976). Clinical experience with two newer copper-loaded IUDs (TCu220C and MLCu250) Simultaneous use of an IUD and a spermicide Postplacental insertion of the MLCu250 Report from the IUD-Workshop, Essen (Germany)*



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- ❋ *Snowden, R (1975), Recent studies in intrauterine devices. a reappraisal, J. Biosoc. Sci , 7, 367*
- ❋ *Kahn-Nathan, J. & H. Rozenbaum, (1976) Le Stérilet au Cuivre: Trois ans après Concours Medical, 98, 10,1447.*

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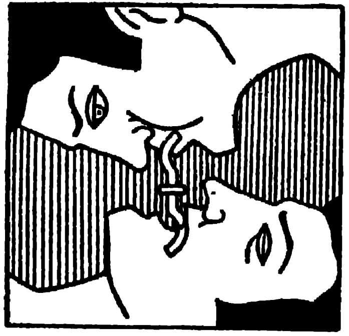

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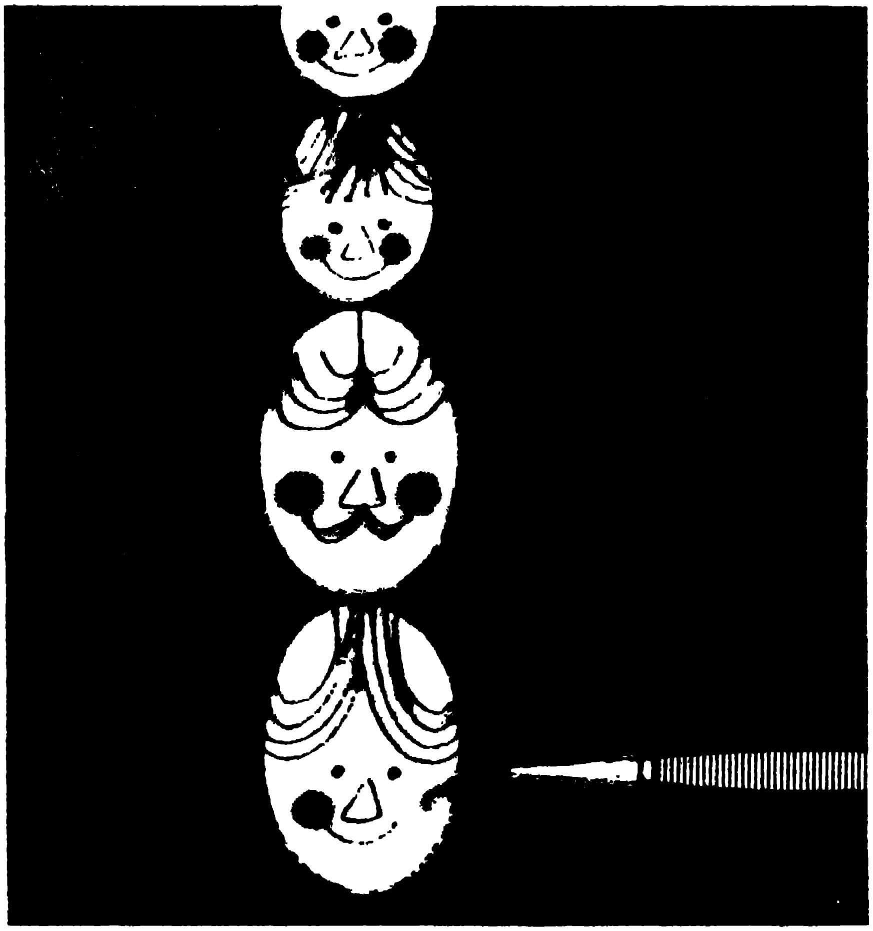

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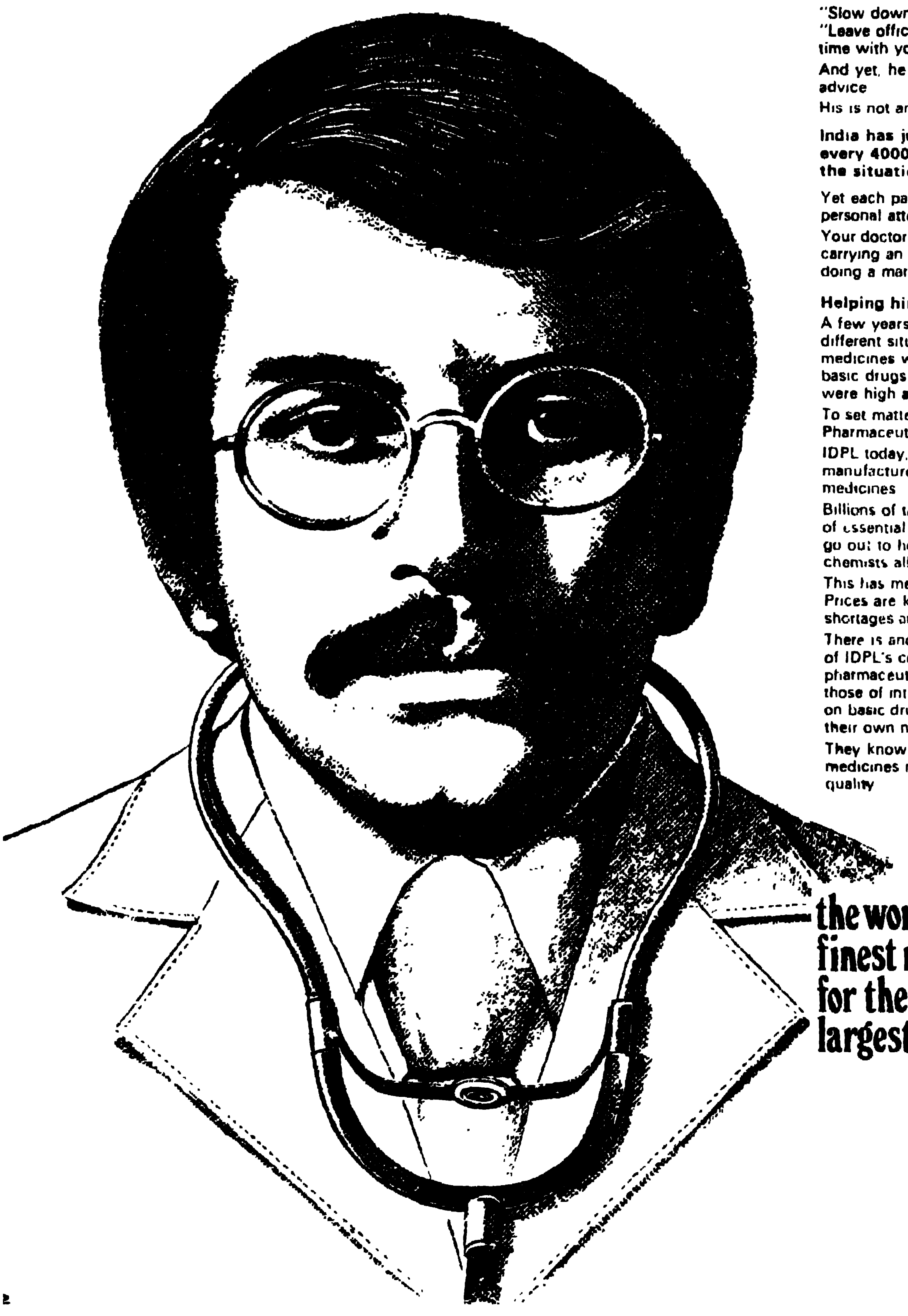
3 BROTHERS

why don't doctors follow their own advice?



"Slow down", your doctor tells you, "Leave office at 5 30 Spend more time with your family"

And yet, he seldom follows his own advice

His is not an easy life

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COMPOSITION

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Furazolidone N F—	—35.7 mg.
Pectin I.P.	— 40 mg.
Kaolin Light I.P.	— 400 mg.
Flavoured base	Q.S.

INDICATIONS

Giardiasis, Bacterial Diarrhoea, Enteric Fever and Cholerae

DOSAGE

Infants under one year: ¼ to ½ teaspoonful 4 times daily. Children 1 year to 4 years: ¾ to 1 teaspoonful 4 times daily. Children 5 years and above 1 to 1½ teaspoonful 4 times daily.

Adult :

3 teaspoonfuls 4 times daily or as directed by the physician

PACKING: 58 ML.
448 ML.

G. D. PHARMACEUTICALS LIMITED
Boroline House, 9 Girish Avenue, Calcutta-700 003

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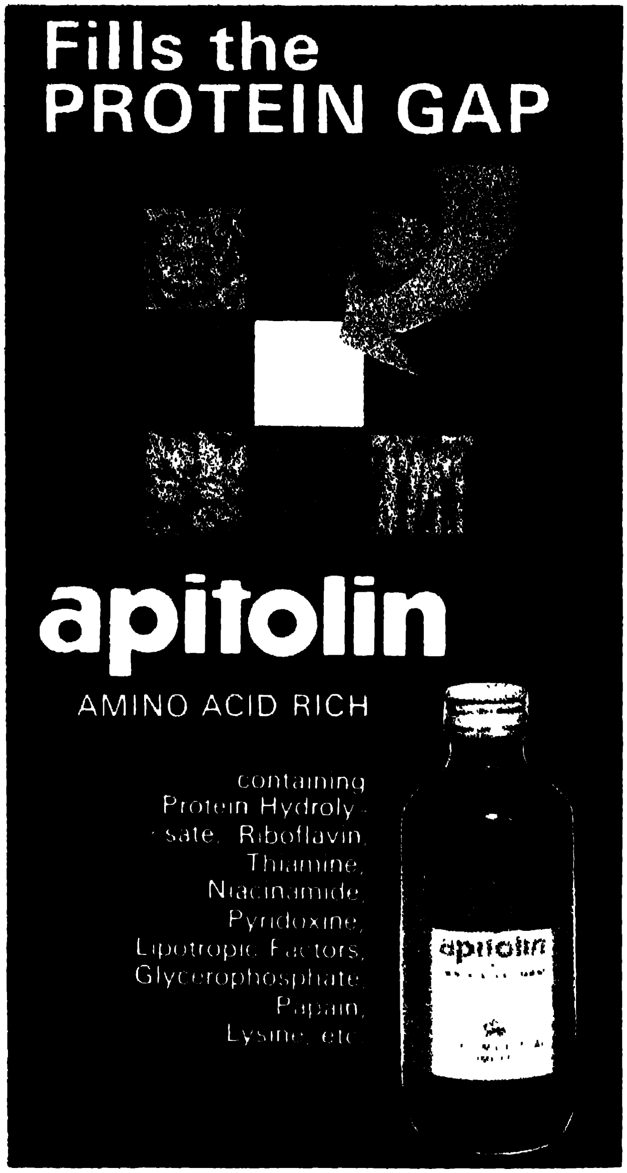

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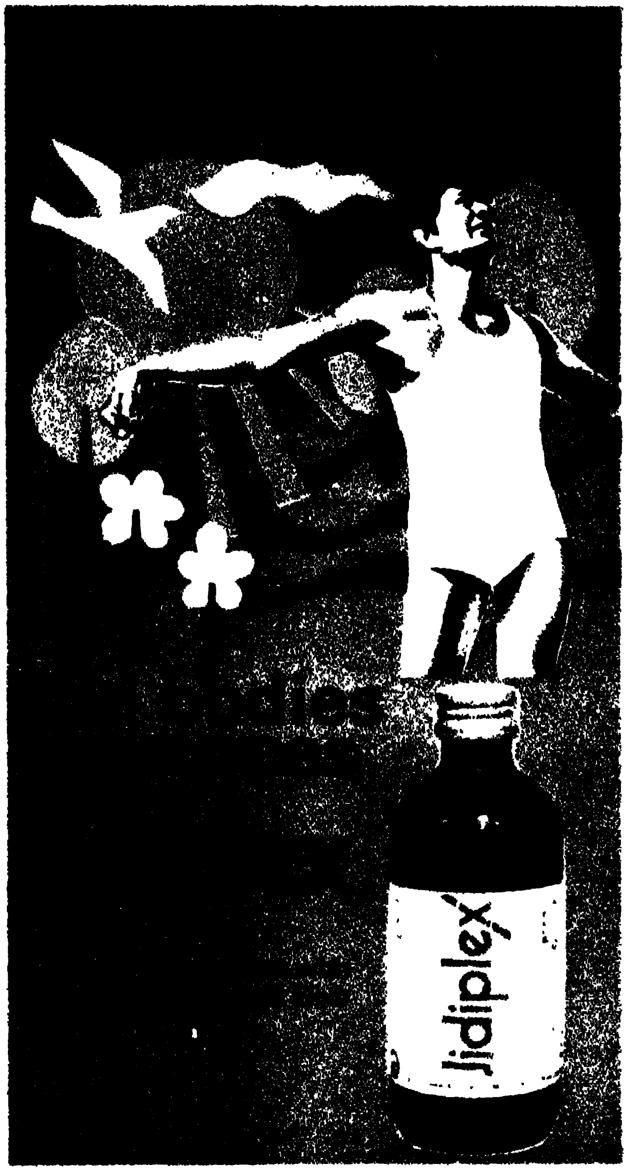

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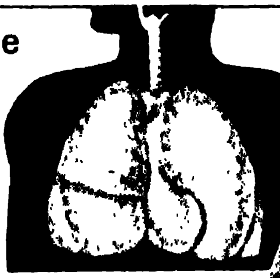

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- Ephedrine HCL

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- Caffeine Theophylline

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- Nicotinic Acid

INDICATION

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DOSAGE

Adults : 1 to 2 teaspoonsful

Children : Under 1 year - 5 to 7 drops. Between 1 and 3 years - 12 drops. Between 3 and 8 years - 20 drops. Between 8 and 12 years 30 drops. To be taken thrice daily with warm water or milk, half an hour after meals. This dose may be repeated during paroxysms according to the direction of the physician

PRESENTATION

Bottles of 84 ml. 168 ml., 448 ml.

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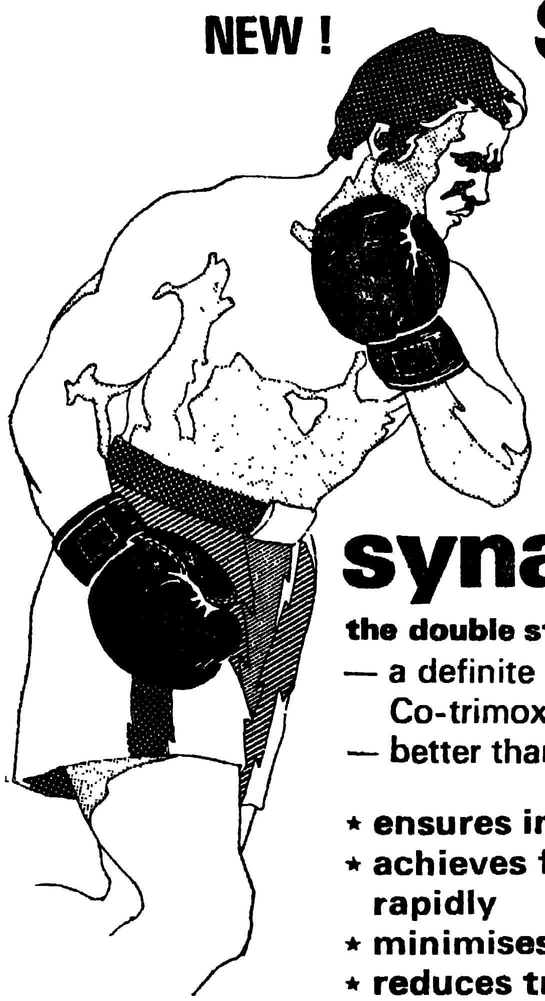

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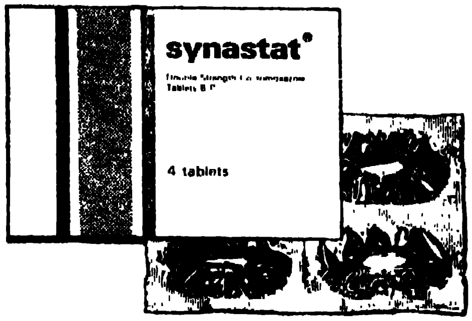

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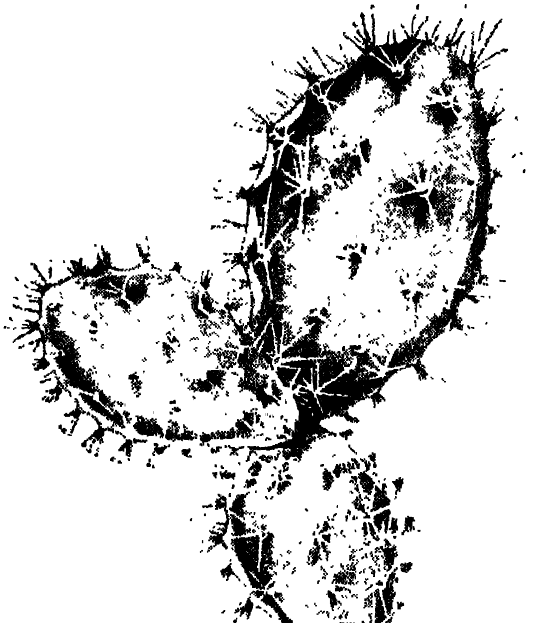

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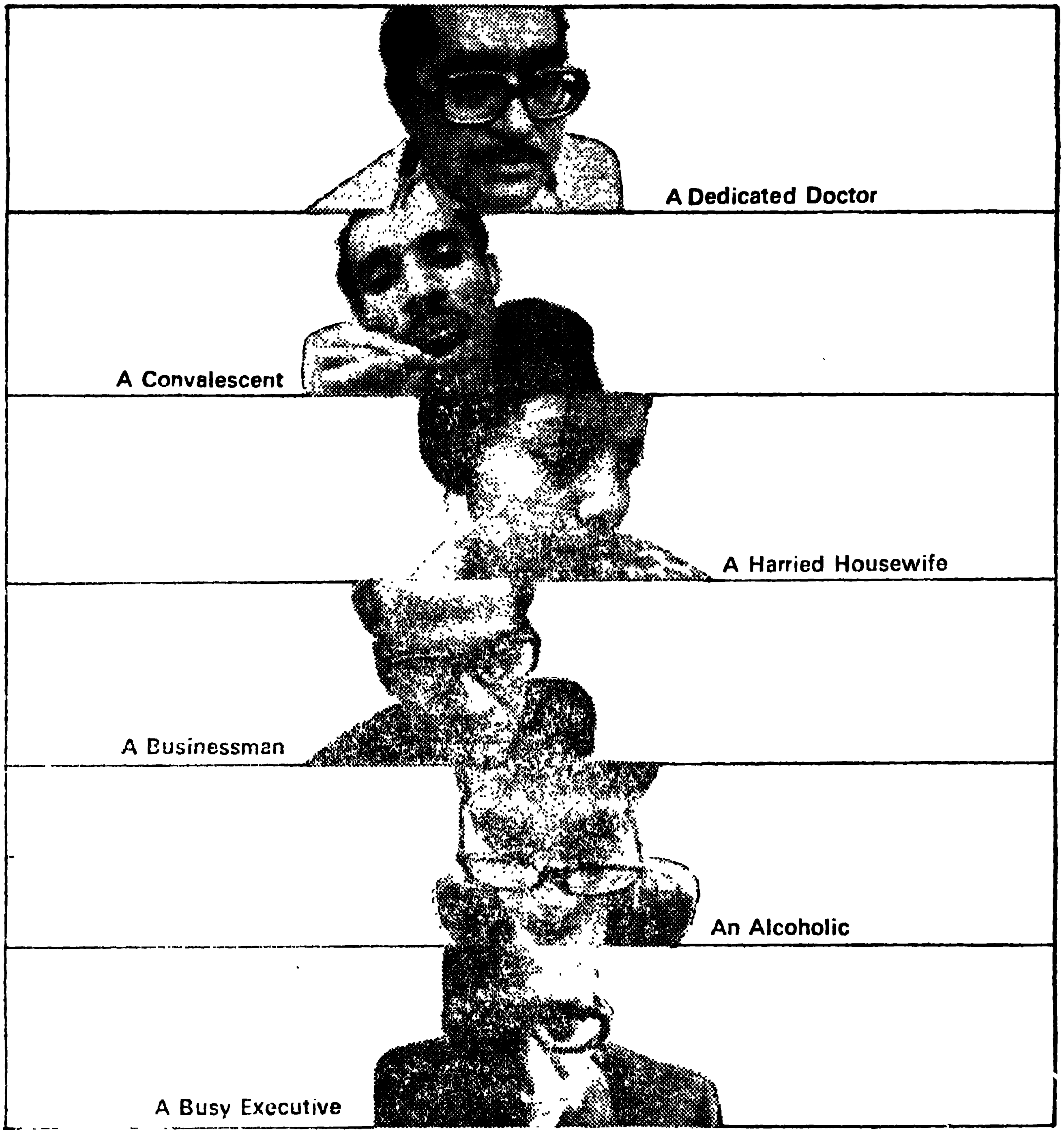

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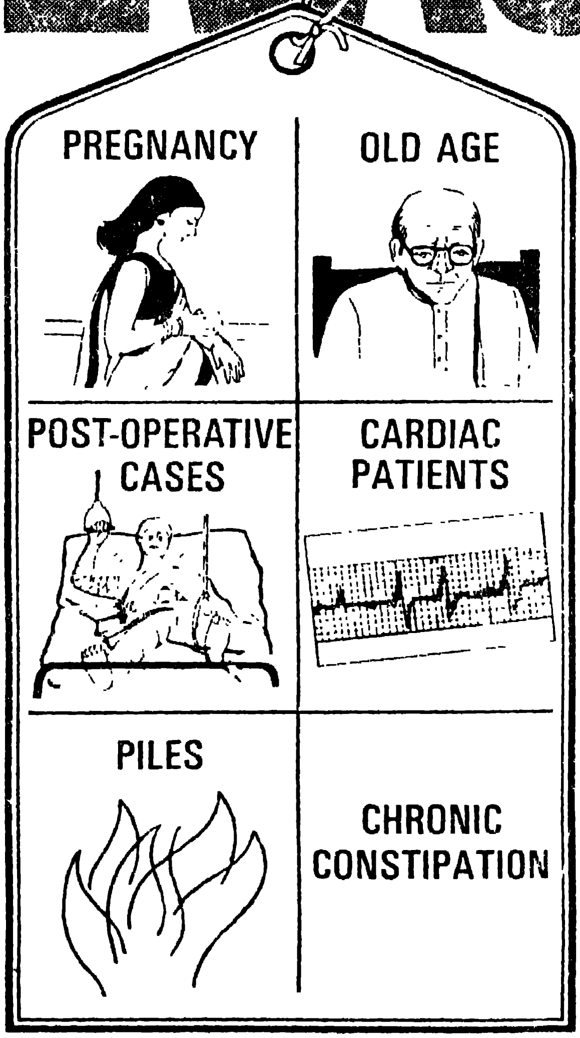

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(THE LANCET, 7237; 1; 1010, 1962)

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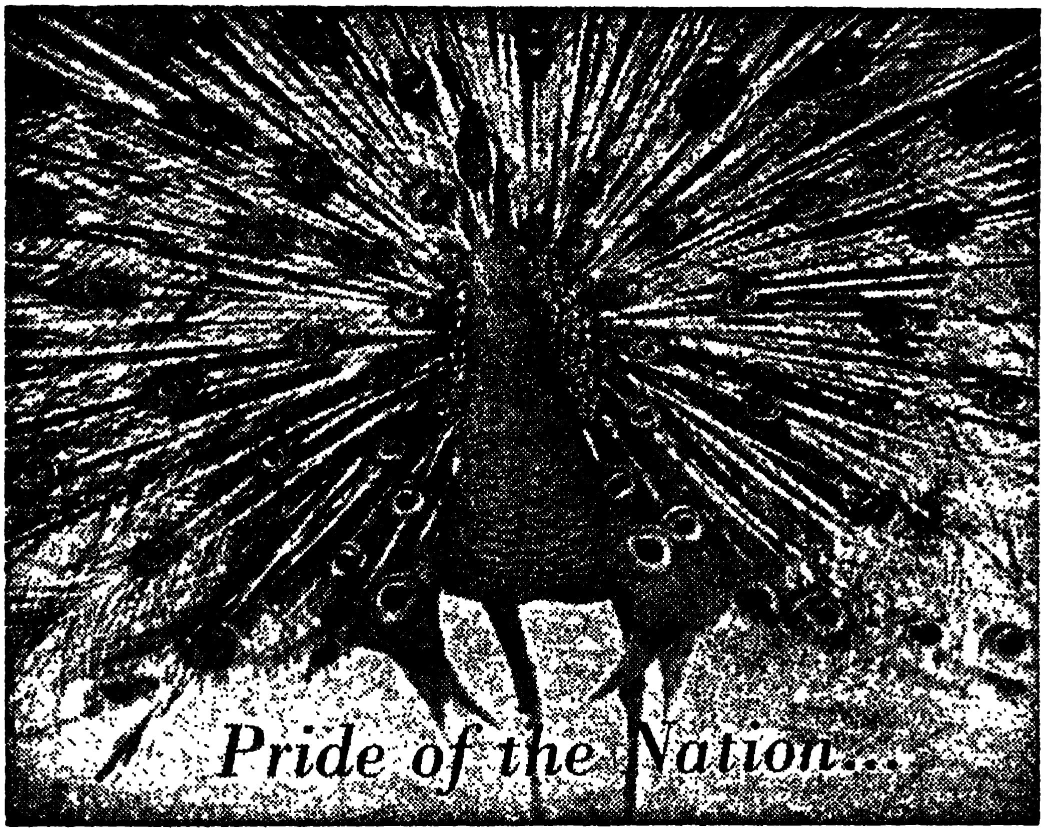

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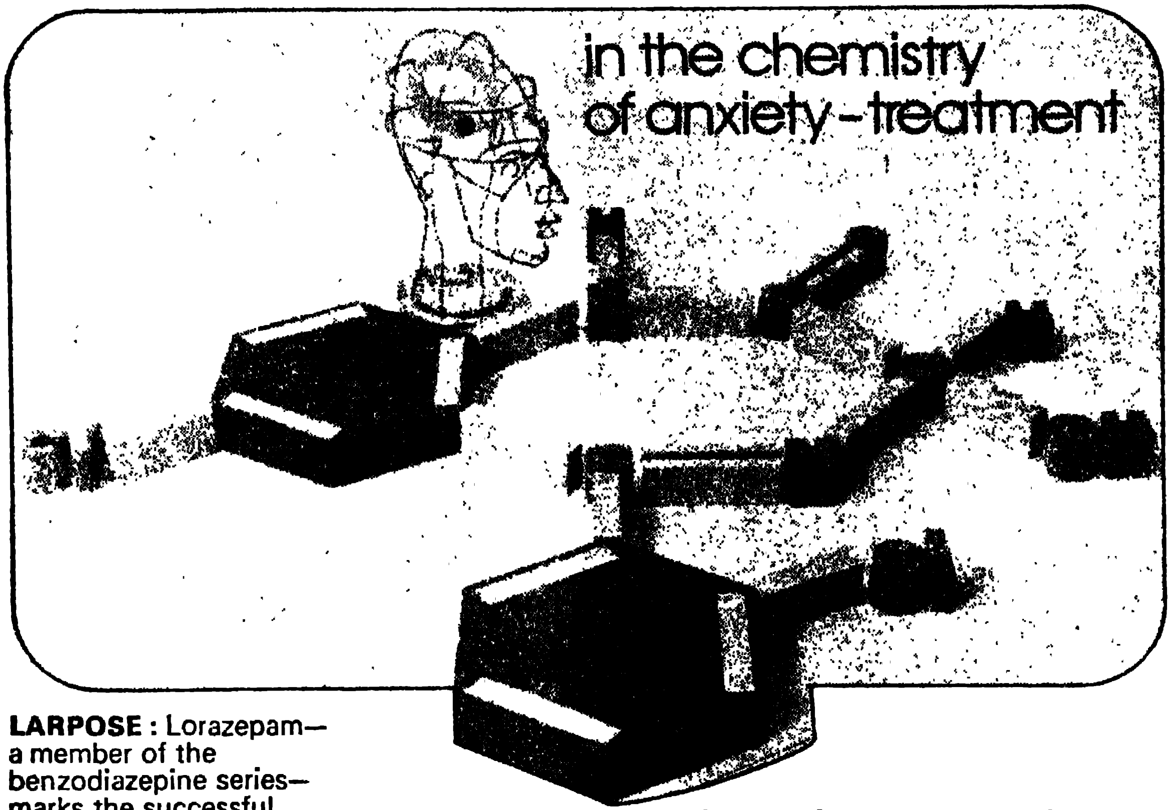

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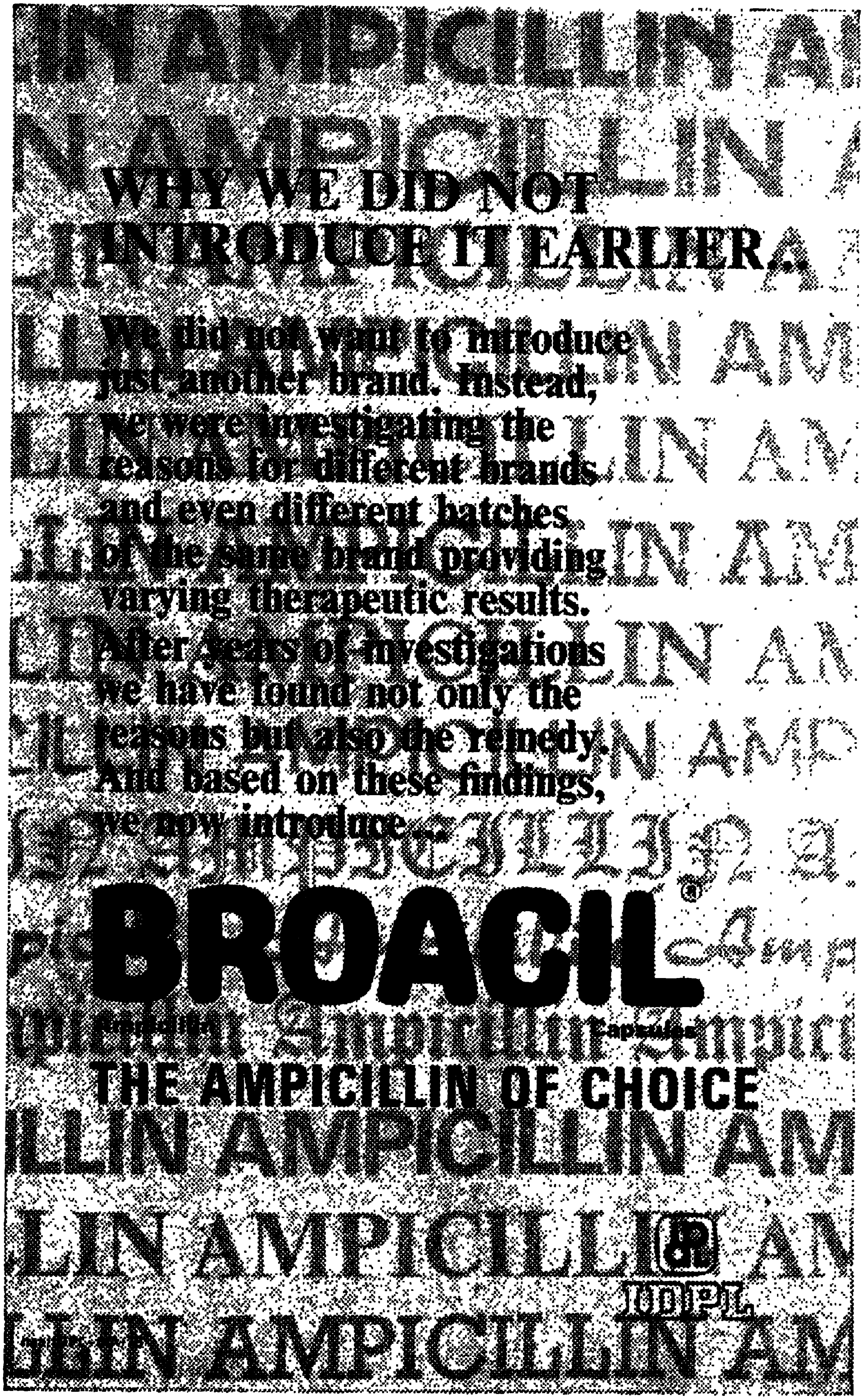

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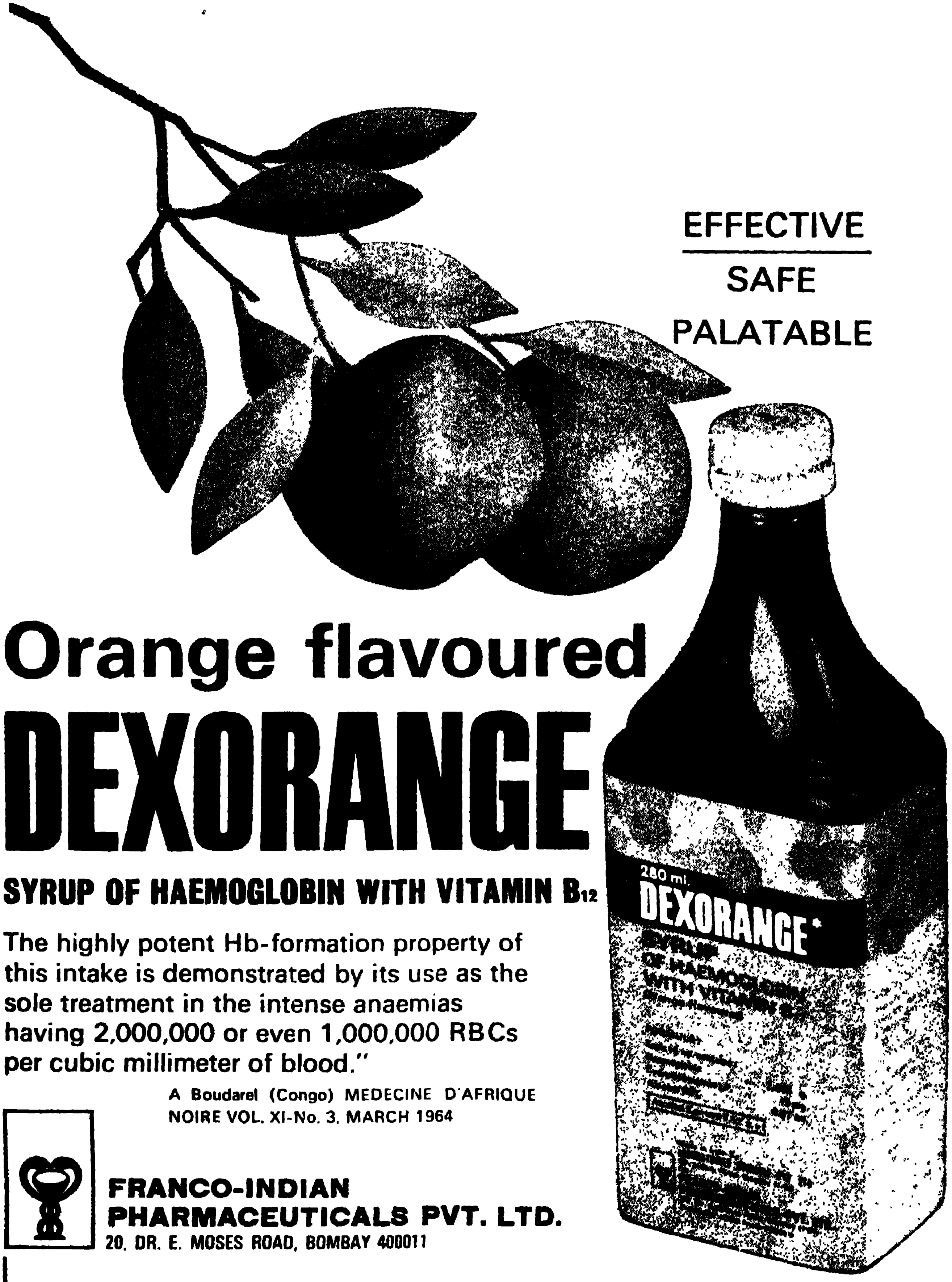
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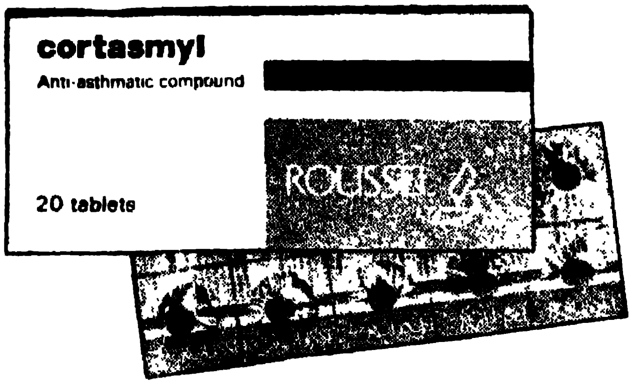

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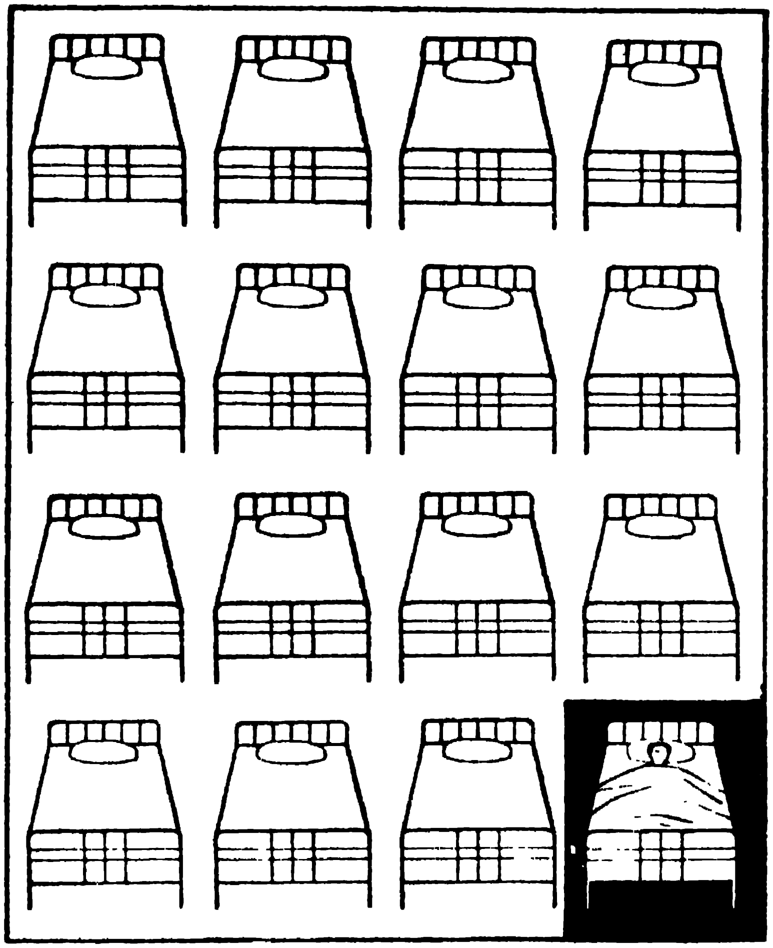

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ORIGINALS AND PAPERS

1

Diabetes Mellitus Associated with Pregnancy

K. M. GUN*, B. N. CHAKRAVORTY**, J. B. MITRA***

[Received for publication January 30, 1976]

Diabetes mellitus is an important complication associated with pregnancy. This is more so in our country where the disease often remains undiagnosed in a subclinical or latent stage because of lack of adequate ante natal care in the majority of our expectant mothers, and also because many practitioners are not conscious about it. The disease is often diagnosed after one or more foetal losses. This increased foetal loss may also occur in the pre-diabetic stage. Present day ante natal care should enable one to diagnose pre-clinical or latent diabetes mellitus during pregnancy even in otherwise normal cases and forestall a foetal death or abortion.

MATERIAL AND METHOD

During the last 11 years 122 cases of diabetes mellitus complicating pregnancy were managed.

In the present series, out of 122 cases only 19 were known to be diabetic before the pregnancy or pregnancies under consideration. In the remaining 103 cases, the abnormality was detected for the first time after the patients were seen; the blood sugar estimation was performed for bad obstetric history or for routine screening. These figures are compared with those of Dhirawani *et al.* (1973) who reported 135 cases of known diabetes and 45 cases of diabetes mellitus diagnosed during pregnancy.

Diagnosis of diabetes mellitus during pregnancy—During the ante natal visits of expectant mothers one should be on the look out for subclinical or gestational diabetes. Unless this possibility is borne in mind, many cases are likely to be missed and the foetal wastage in this group will be high.

At each ante natal visit, the urine is examined for sugar and albumin. If sugar is present, an estimation of fasting blood sugar and that after 2 hours of ingesting 100 g. of glucose orally is performed. If the fasting value exceeds 110 mg. per 100 ml. or that after 2 hours is over 120 mg. or exceeds the fasting value by 20 mg. or more, a glucose tolerance test is performed after taking 100 g. of glucose.

Postprandial blood sugar is also estimated in the following groups of cases:

i) Those with a family history of diabetes mellitus. ii) Any woman who had previously given birth to a baby weighing 4 kg. or more. iii) Previous unexplained stillbirth or neonatal death. iv) Recurrent attacks of monilial vulvovaginitis. v) Extreme degree of obesity; 75 per cent of diabetic and prediabetic patients in the series of Dass and Malik (1969) were obese.

In these cases the estimation is repeated after 28th week even if the blood sugar is normal at the first visit.

OBSERVATIONS

Age incidence—The incidence of age of pregnant diabetics were as follows: Fifty-four cases in the age group of 20-30 years, 56 cases in the age group of 31-35 years and 12 cases in the age group of above 35 years.

A large number of pregnant diabetics belong-

Department of Obstetrics and Gynaecology, N. R. S. Medical College, Calcutta
*M.O. (Cal.), F.R.C.O.G., F.R.C.S. (Edin.), Reader
**M.O. (Cal.), F.R.C.O.G., Reader
Institute of Postgraduate Medical Education and Research, Calcutta
***M.O. (Cal.), M.R.C.O.G., F.I.C.S., Assistant Professor

ed to the age group of 31-35 years. This corresponds with the experience of other workers like Saraf *et al.* (1967), Adatia and Adatia (1968) and Dhirawani *et al.* (*loc. cit.*).

Dangers—Undiagnosed and/or badly treated cases constitute a real problem and there is a very high incidence of abortion and perinatal death in this group. Table 1 shows the incidence of previous abortions and perinatal deaths before the patients came for treatment in this series. The combined abortion and perinatal death was 64.2 per cent.

Table 1—*Showing the Incidence of Previous Obstetric History*

Total cases	Previous pregnancies	Surviving babies	Abortions and ectopic	Perinatal loss	Died later
122	161	52	52	52	5

Severity of diabetes—In majority cases of the present series, diabetes mellitus, as diagnosed during pregnancy, was of mild degree, the post-glucose blood sugar being below 140 mg. per 100 ml. of blood, though 14 cases had a post-glucose blood sugar level above 200 mg. per 100 ml. This is shown in Table 2.

Table 2—*Showing Incidence of Post-glucose Blood Sugar Level in Known Diabetics and Diabetes Mellitus Diagnosed during Pregnancy*

State	Blood sugar level (mg./100 ml.)			
	120-140	141-160	161-200	Above 200
Known diabetics	2	7	4	6
Diagnosed during pregnancy	49	23	17	14

Severity of diabetes is one of the important factors which affect foetal prognosis. The results are very satisfactory in cases of mild gestational diabetes controlled with dietetic measures alone or with diet and a small dose of insulin. In the series of Dhirawani *et al.* (*loc. cit.*) the foetal salvage was 85.7 per cent in cases of mild diabetes and only 66.6 per cent in diabetes of severe degree. In the present series, there was 4 perinatal deaths out of 81 cases (about 5 per cent) where the blood sugar level was below 160 mg. whereas there were 6 deaths out of 41 cases (14.6 per cent) with a blood sugar above 160 mg. per cent.

Associated complications—It is well known that diabetes is sometimes associated with pre-eclamptic toxaemia (PET), hydramnios and congenital malformation of the foetus. Diabetic mothers have also a tendency to give birth to big babies (weight above 4 kg.). The incidence of associated complications were as follows :

PET or hypertension—25 cases, hydramnios—4 cases, congenital malformation—nil, big babies—20, hypothyroid state—2 cases and congenital pulmonary stenosis—1 case.

Association of essential hypertension or PET adversely affects the foetal prognosis in diabetes mellitus. There may be sudden intra-uterine death of the foetus or labour may have to be terminated prematurely because of aggravation of toxaemia, with increased mortality of the premature baby. In the present series, 25 out of 122 cases (20.5 per cent) had PET or essential hypertension. There were 4 perinatal deaths in these cases ; hydramnios was an additional complicating factor in one of these and labour started spontaneously at 34 weeks with death of the foetus because of prolapse of the cord. In the series of Viswanathan *et al.* (1966) the incidence of pre-eclampsia was 14.5 per cent, as compared to 4.35 per cent in the non-diabetic.

Management—The pregnant diabetics are seen every fortnight during pregnancy. Majority of mild gestational diabetics can be controlled with dietetic measures alone and they do not need admission in the hospital for stabilisation. Cases, not controlled with dietetic measures, are admitted for stabilisation with insulin. Mild well controlled diabetics with a previous normal obstetric history, and without any associated hypertension or PET, are admitted at 38th week of pregnancy. When stabilisation is difficult, or there is associated toxaemia or hydramnios or a bad obstetric history, the case is admitted at 32nd week or earlier in some cases.

So far as antidiabetic agents are concerned, it is the practice to treat these cases with two, and sometimes three doses of soluble insulin, if the diabetes is not controlled with dietetic measures alone. A patient who has been receiving oral antidiabetic agents before pregnancy, is changed to soluble insulin at about 28th week or earlier if there is any evidence of ketosis, or stabilisation of blood sugar becomes difficult. A few cases treated with chlorpropamide have been reported by other workers (Jackson *et al.*, 1962 ; Notelovitz, 1968 ; Adatia and Adatia, *loc. cit.* ; Dhirawani *et al.*, *loc. cit.*). Long acting insulins are also not suitable for treating pregnant diabetics. The authors have come across a few cases where intra-uterine death of the foetus has occurred with this treatment. Some of the cases controlled with dietetic measures alone have required soluble insulin and dextrose drip during labour or caesarean section for prevention of ketosis.

In a primigravida with well-established diabetes mellitus, it has been the practice in this series to perform an elective caesarean section. This practice is also followed in a multipara with bad obstetric history. If conditions are favourable, surgical induction is performed with low rupture of membranes in a multipara with good obstetric history. This is combined with oxytocin drip. Caesarean section is sometimes necessary in these cases if progress of labour is slow or when it is difficult to control ketosis. Viswanathan *et al.* (*loc. cit.*) found prolonged labour in 13.8 per cent of diabetics as compared to 5.8 per cent of non-diabetics. If induction delivery interval is prolonged, infection is also common. The outcome of pregnancy and methods of delivery are shown in Table 3.

Table 3—*Showing Outcome of Pregnancy*

Intra-uterine death	Spontaneous premature labour	Spontaneous labour at term with vaginal delivery	Induction of labour	Caesarean section
6	6	23	4	86

In the present series, caesarean section was necessary in 86 cases (68.8 per cent) out of 125 pregnancies in 122 patients; 76 of these were elective caesarean sections and in the remaining 10 cases it was necessary because of uterine inertia or foetal distress. Elective caesarean section was considered in such a large number of cases because of associated abnormalities like advanced age in a primigravida, bad obstetric history and cephalopelvic disproportion in some cases. Saraf *et al.* (*loc. cit.*) performed caesarean section in 26.6 per cent of their cases, Adatia and Adatia (*loc. cit.*) in 27.5 per cent and Dhirawani *et al.* (*loc. cit.*) in 22.5 per cent cases.

The exact cause of birth of big babies in diabetes or pre-diabetes is not known, although factors such as secretion of pituitary growth hormone, adrenal glucocorticoids and maternal hyperglycaemia have all been incriminated. In the series of Viswanathan *et al.* (*loc. cit.*), the incidence of overweight babies was 32.5 per cent. Dass and Malik (*loc. cit.*) reported that 55.5 per cent of the pre-diabetics gave a history of having given birth to large-sized babies.

Whatever might be the cause of big babies, all workers have found fewer big babies in well-controlled cases. In the present series all the big babies were encountered in the earlier cases.

Perinatal mortality—The authors managed 125 pregnancies in 122 cases (including one set of twins). There were 10 perinatal deaths (7.9 per cent).

DISCUSSION

The incidence of diabetes mellitus in hospital practice is about 1 in 800 pregnancies. From India, only one large series of 180 cases has been recently published (Dhirawani *et al., loc. cit.*); but they have not mentioned the incidence. From Western literature it appears that the incidence is about 1 in 350 (Barnes, 1970).

For proper screening of potential or gestational diabetes mellitus, not only the types of cases mentioned above, but all pregnant women above the age of 25 years should have a screening test performed. Presence of subclinical or potential diabetes mellitus in the family may not be known; unless all cases are screened some of the gestational diabetics may remain undiagnosed and an unforeseen intra-uterine death of the foetus may occur. According to Dass and Malik (*loc. cit.*), for every one case of known diabetes mellitus there are approximately three in the undiagnosed state. This view is supported by the observations of Hofmeister *et al.* (1971), who found that out of 372 obstetric patients 22.3 per cent had an abnormally elevated postprandial glucose level; in only three patients this finding was anticipated by history. O'Sulliven *et al.* (1973) also share the same view.

The large proportion of known diabetics in the series of Dhirawani *et al.* (*loc. cit.*) is probably due to the fact that their cases were collected from the special diabetic clinic attached to the hospital.

Pregnancy is usually terminated after 37 or 38 weeks of gestation in a diabetic by caesarean section or surgical induction of labour in order to minimise the risk of intra-uterine death of the foetus. It is felt that the ready availability of a laboratory parameter for determination of foetal well-being, e.g., urinary or serum oestriol estimation might have saved some of the babies. In two cases, pregnancy was terminated after completion of 36 and 37 weeks respectively because of bad obstetric history; both the babies died of respiratory distress syndrome. Another elderly primigravida also lost her baby after caesarean section at 36 weeks for sudden deterioration of pre-eclamptic toxaemia. It might have been possible to wait for one or two weeks more in these cases if some other parameter for determination of foetal well-being were available besides clinical assessment. Weekly estimation of serum heat-stable alkaline phosphatase was performed in some of these cases, but it was not found to have any definite correlation with clinical condition.

In a few cases of mild gestational diabetes in multipara with good obstetric history or in young primigravidae, pregnancy was allowed to continue to term for spontaneous onset of labour, with no adverse effect to the baby. This view is supported by the works of other Indian workers (Saraf *et al., loc. cit.*; Adatia and Adatia, *loc. cit.*; Dhirawani *et al., loc. cit.*).

All recent communications have shown no maternal mortality in pregnant diabetics. But the foetal loss in our country has been reported to be high, as shown in Table 4.

Table 4—*Showing Maternal and Foetal Mortality in Pregnant Diabetics*

Author	Maternal mortality	Foetal mortality
Saraf *et al.* (1967)	3.6%	23.3%
Adatia and Adatia (1968)	Nil	14.0%
Schwartz *et al.* (1969)	Nil	2.6%
Peel (1972)	Nil	4.7%
Dhirawani *et al.* (1973)	Nil	25.6% (including abortion)
Gun and Chakravorty (1976)	Nil	12.5%

Viswanathan *et al.* (*loc. cit.*) found a foetal wastage (including abortion) of 40.2 per cent in diabetics compared to 16.4 per cent in non-diabetics. If only abortion was considered, the incidence in diabetics was about double that of the non-diabetics; the corresponding perinatal mortality was 27.5 and 8.2 per cent respectively. Saraf *et al.* (*loc. cit.*) observed 16 abortions and 31 stillbirths in 110 pregnancies among 28 pregnant diabetics. In Dass and Malik's series (*loc. cit.*), 42.6 per cent of diabetics gave a history of one or more premature births; history of stillbirth was present in 42.6 per cent of diabetics and 33.3 per cent of pre-diabetics.

The exact cause of intra-uterine death of the foetus in diabetes mellitus is not exactly known. There is no evidence of placental insufficiency unless the case is complicated by hypertension or pre-eclampsia. Neonatal death may occur due to respiratory distress syndrome or hypoglycaemia. Whatever may be the cause of foetal death, the incidence is high if the diabetes is of long duration, if it is not well controlled, or if it is complicated by hypertension, pre-eclampsia or hydramnios.

SUMMARY AND CONCLUSION

One hundred and twenty-five pregnancies in 122 cases associated with diabetes mellitus have been presented.

There was no maternal death. The gross perinatal mortality was 7.9 per cent.

For screening of potential diabetics, all pregnant mothers above the age of 25 years should have a post-glucose blood sugar estimation performed. All practitioners must be diabetes conscious so that diabetes may be diagnosed early and an unsuccessful pregnancy prevented.

For better results, these cases should be referred to special centres who have experience of managing such cases.

ACKNOWLEDGMENT

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2

Hyperostosis and Diabetes Mellitus

S. P. S. TEOTIA*, M. TEOTIA**, R. K. SINGH***
N. P. S. TEOTIA****

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Continuing interest since 1964 in the study of metabolic bone disorders prompted the survey of skeleton of patients with diabetes mellitus for possible bone involvement. The purpose of this communication, therefore, is to report the findings on roentgenologic examination of skeleton in patients with diabetes mellitus and to discover if any correlation exist with the clinical and biochemical findings in these patients.

MATERIAL AND METHOD

A review was undertaken of 55 non-selected diabetic patients who attended diabetic clinic during the past 4 years and in whom clinical, biochemical and roentgenological examinations were performed. The diagnosis of diabetes mellitus was confirmed in each patient by accepted criteria and appropriate investigations were performed in each case to exclude any other concurrent illness.

Laboratory investigations included estimation of plasma calcium, plasma phosphorus, plasma alkaline phosphatase, blood urea, glucose tolerance test, blood cholesterol, creatinine clearance and estimation of 24-hour urinary calcium excretion. Skeletal radiographs were taken of skull, spine and of bones of the extremities.

OBSERVATIONS

Clinical—Six were males and one female, their ages ranged from 38 to 58 years ; body weight from 56 to 82 kg. and duration of diabetes mellitus from 5 to 15 years. At the time of their first visit to the diabetic clinic, 6 were receiving oral therapy with tolbutamide and one was being treated with insulin. None had keto-acidosis, one had moderate hypertension, 2 showed retinopathy and only one had peripheral neuropathy.

Investigations—Fasting blood sugar ranged from 137 to 198 mg. per cent, blood cholesterol was above 250 mg. per cent only in 3 cases and only one case had mild albuminuria. Plasma calcium, plasma phosphorus, alkaline phosphatase, blood urea, 24-hour urinary excretion of calcium and creatinine clearance showed findings within the normal range.

X-ray showed hyperostosis of skull alone involving frontalis interna, base and calvarium in 3 patients (Fig. 1). In 2 patients, hyperostosis of skull was combined with hyperostosis of bones of the extremities. In one patient, hyperostosis of skull was associated with spondylosis hyperostotica and one had hyperostosis of bones of extremities only.

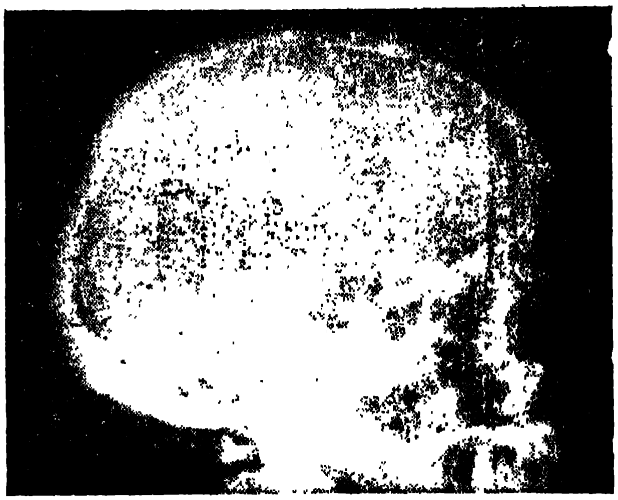

Fig. 1—Showing Hyperostosis of the Skull Involving the Frontalis Interna Base and the Calvarium

DISCUSSION

Continued interest in the study of metabolic bone diseases led to review the roentgenographic examinations of skeletons in 55 patients of diabetes mellitus who have been inpatients and who also regularly attended the diabetic clinic during the past 4 years.

Radiological findings suggestive of hyperostosis were observed in 7 of the 55 patients. At the time of taking the skeletal radiographs, diabetes mellitus was inadequately controlled in all the patients. The distribution of bone changes revealed that hyperostosis of the skull alone involving the frontalis interna and the calvarium was the commonest radiological abnormality and was observed in 3 patients. In 2 patients hyperostosis of the skull was combined with the hyperostosis of bones of the extremities. Hyperostosis of bones of the extremities alone as revealed by thickening of the cortex and periosteal calcifications in the diaphysis was seen in one patient only. Hyper-

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Department of Human Metabolism, L.L.R.M. Medical College, Meerut

*M.D. (Medicine), Specialist in Human Metabolism (Lond.), Professor and Head

**M.D. (Paediatrics), D.C.H., Specialist in Human Metabolism (Lond.), Lecturer and In-charge, Bone and Stone Unit

***M.Sc., Ph.D. (Biochem.), Biochemist

****M.D. (Medicine), Pool Officer, CSIR

ostotic spondylosis, best seen on the lateral x-ray picture of the dorsal spine, was observed only in one patient and was characterised by ribbon-shaped ossification lying on the front surface of the vertebrae and bridging the space between them. Despite the calcification of the anterior longitudinal ligament, this patient had no clinical symptoms.

Conditions likely to cause hyperostosis, such as, renal hyperparathyroidism, hypophosphataemic osteomalacia, skeletal fluorosis, vitamin D intoxication, hypoparathyroidism and ankylosing spondylitis were carefully excluded in each case by appropriate investigations.

On the basis of the observations described, it is suggested that the association of diabetes mellitus with hyperostotic bone changes may be a separate entity and not accidental.

Schoen (1970) reported that 105 (23 per cent) out of 460 cases treated since 1964 for latent or manifest diabetes mellitus were found to suffer from hyperostotic spondylosis. In his series, elderly diabetics suffered from it more frequently and spondylosis hyperostotica never occurred before the 31st year and seldom before the 50th. It was also more frequent in patients with manifest than in those with asymptomatic diabetes mellitus without glycosuria and without hyperglycaemia but with an abnormal tolbutamide test and IV glucose tolerance test.

Forgac (1972) reported that hyperostotic changes developed earlier, more frequently and more intensively in diabetic patients than in non-diabetic control group. He further emphasised that spondylosis hyperostotica is commonly seen in men, while cranial hyperostosis is more common in women. Simultaneous appearance of spondylosis hyperostotica and cranial hyperostosis was observed in one male patient. Pathophysiology of hyperostosis in diabetic patients is not clearly understood. One case with spondylosis with hyperostosis also showed hyperostosis frontalis interna. The tendency of these two hyperostoses to co-exist is apparent also in acromegaly and seems to suggest that the somatotrophic or as yet unidentified hormone may be the common pathogenetic factor which influences carbohydrate metabolism as well as stimulates the skeleton to form new bone deposits. Some degree of hyperostosis frontalis interna may be a normal feature of middle age. It is, however, associated with slight mental retardation. The main importance of hyperostosis frontalis interna is the resemblance of the changes to hyperostosis due to meningioma. Preference of meningioma in a case of hyperostosis frontalis interna may be marked. Whatever may be the exact pathogenesis, findings of hyperostosis in diabetics of this series are of interest. It is held that hyperostotic changes and diabetes mellitus form a characteristic entity and cannot be considered as a simple co-incidence. All patients, in this series, who had hyperostosis were over-weight, poorly controlled and 5 had maturity onset diabetes.

In view of the occasional association of diabetes mellitus with hyperostosis, investigations of carbohydrate metabolism should be performed in each case showing hyperostosis. Further work is needed to discover the exact pathogenesis, metabolic or hormonal factors responsible for the occurrence of hyperostotic bone changes in patients with diabetes mellitus.

SUMMARY

Fifty-five cases of non-selected diabetic patients were studied to find out a correlation between diabetes mellitus and hyperostosis. Hyperostosis was found only in 7 cases.

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3

Medical Problems of Fresh Water Diving

M. Y. KHAN*

[Received for publication December 22, 1975]

According to statistics it has been estimated that diving is 96 times more dangerous than driving an automobile on time basis (Quint, 1967). Mortality among divers is 220 times more than among factory workers. A diver is trained rigorously to take heed of the important and proven regulations which experience has shown to be essential for safe and satisfying diving. Invention of the 'aqua-lung' has helped in increasing the number of divers to 15,000 annually (Editorial, 1972). As men extend their sphere of activities in and underwater, common problems

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*B.Sc., M.B.B.S., M.U.M.S. (USA), Medical Officer In-charge, Medical Cover for Divers, Gandhi Sagar Colony, Mandsaur, M.P.

of adoptation are faced and new hazards met with. The present paper is based on 98,000 man-hours underwater among fresh water divers. It is hoped that the paper may be of help to any medical man who finds himself responsible for advising those going in and underwater.

MATERIAL AND METHOD

Locally trained divers of the age group of 25-55 years were the subjects for the study during the period 1968 through 1975. The subjects had diving experience ranging from a few months to 30 years. Each diver was thoroughly investigated before the study and those having diabetes, ischaemic and other heart diseases, obstructive lung diseases, skin diseases and epilepsy were not included in the study. Each diver was examined before entering and after return from water. The slightest complaint was noted and investigated thoroughly. Diving efficiency (useful diving time per unit of total time underwater) varied from diver to diver and the nature of work. The diving depth ranged from 25 feet to 189 feet of fresh water. The nature of work was clearance diving, underwater construction and inspection and salvage operation. Few divers liked suits, others disliked it. Diving with SCUBA (self contained underwater breathing apparatus) as well as standard diving with SDDE (surface demand diving equipment) remained the methods of diving. Atmospheric air free from impurities was used. Diving was restricted on empty stomach, after meals and intake of alcohol. Majority of divers were illiterate and belonged to poor socio-economic status.

OBSERVATIONS

Table 1 shows the incidence of various medical problems observed by the author compared to those reported by the other workers.

DISCUSSION

Navy divers are more motivated to report all symptoms irrespective of severity. Commercial and sport divers on the other hand, ignore pain of any nature if it is tolerable. In Lambertsen's (1947) series the serious diving hazards such as bends and squeeze were eliminated because of the use of independent closed circuit re-breathing apparatus having a diving range of not more than 60 feet of water. The University of Rhode Island (1972) did not report a single case of vertigo out of its 200 non-fatal cases of accidents. The incidence of air embolism and bends was fairly more in that series. Berhage (1966) reported 560 cases of bends, the highest ever recorded in any series. The method of reporting used by them was different. Lundgren (1965) reported 92 cases of vertigo among

Table 1—*Showing the Comparative Incidence of the Medical Problems Observed in the Present Study as well as Those Reported in the Literature*

Problems	Lambertsen (1947)	University of Rhode Island (1972)	Lewis and Langdon (1966)	Lundgren (1965)	Berhage (1966)	Present series	Weeth (1965)	Webster (1968)
Otitic barotrauma	11	100	—	—	—	66	165	20
Diver's vertigo	—	—	15	92	2	41	—	—
Sinus pain	13	12	1	—	—	21	3	40
Dental barotrauma	—	1	—	1	—	1	—	—
Oxygen poisoning	5	18	2	—	—	2	—	—
Pulmonary barotrauma:								
Surgical emphysema	—	2	—	—	2	3	—	11
Pneumothorax	—	3	—	—	2	4	—	6
Air embolism	—	40	—	—	4	2	—	14
Bends	—	40	2	24	560	30	33	—
Squeeze	—	—	4	12	20	4	—	—
Soda lime bronchitis	—	—	1	1	20	—	—	—
Asphyxia	1	12	2	—	3	6	—	—
Anoxia	—	3	4	2	1	2	—	—
Claustrophobia	2	—	—	—	—	—	—	—
Nitrogen narcosis	—	3	2	3	1	4	—	—
Illness under water	—	4	10	—	3	4	—	—
Injuries by aquatic animal	Many	20	—	—	2	4	—	1

Swedish sport divers. He further reported that 1 in 20 of the vertigo group consistently experienced the effect and 1 in every 5 regarded its onset as 'very or rather troublesome'. Lewis and Langdon (1966) reported at least one occurrence of vertigo in 50 per cent of their cases among US Navy divers. University of Rhode Island (*loc. cit.*) reported maximum cases of pulmonary barotrauma and still few of their cases remained under 'suspected over pressure injuries'.

SUMMARY AND CONCLUSION

Medical problems of fresh water diving have been studied. These hazards can be easily avoided by strictly following the rules and regulations of underwater clubs or schools. In our country there are no clubs or schools for imparting instructions in diving. Organisation of underwater clubs, schools and institutes are essential for the nation.

It can be safely concluded that safety in diving requires proper combination of common sense together with the familiarity and maintenance of the equipment used.

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CASE NOTES

1

Kaposi's Sarcoma of Small Intestine

P. SENGUPTA*, M. M. DAS**

Kaposi's sarcoma (Kaposi, 1872) till recently was considered to be a disease peculiar to East Europeans, mainly Jews (Evans, 1968). It has since been reported from many parts of the world (Naik, 1976). Solitary cases of cutaneous Kaposi's sarcoma have been recorded from India in recent years (Srivastava and Nagar, 1966; Reddy *et al.*, 1968). Although primarily a lesion of the skin, Kaposi's sarcoma in rare instances exclusively involves visceral sites only (Tedeschi *et al.*, 1947; Anthony and Koneman, 1960). In a recent series of 51 cases, only one had abdominal involvement (Naik, *loc. cit.*).

A case of Kaposi's sarcoma of the small intestine occurring in a male patient, is considered to be worth reporting due to extreme rarity of such cases.

CASE REPORT

N.N.A., a 45-year-old Hindu male, attended the surgical outpatient department on 15-12-1975, complaining of pain in the right iliac fossa for 7 days and was diagnosed to have a well localised appendicular lump and was treated conservatively as an outpatient. In spite of being treated adequately the lump persisted.

On reviewing the patient on 9-2-1976, it was found that the lump had considerably increased in size. He was clinically diagnosed to have lymphosarcoma of the small intestine and was admitted on the same day. Although on admission there were no pain or fever, on enquiry it was found that he had had occasional vomiting, low grade fever and vague pain over the right iliac fossa, with gradual loss of body weight.

Examination—The patient was moderately built, poorly nourished and had remarkable pallor. Pulse was 72 per minute, BP—122/80 mm. Hg.

On abdominal palpation, a large nodular, slightly mobile, non-tender lump, about 15 cm. in diameter, with fairly well defined margin and irregular consistency, was detected in right lower quadrant of abdomen.

Investigations—The patient had slight leucocytosis (11,000/c.mm.) with high polymorphonuclear count (90 per cent), and very low haemoglobin concentration (4 g. per cent). Results of stool and urine tests, blood sugar and urea concentrations were normal.

Operation—With repeated blood transfusions haemoglobin concentration was raised to 9 g. per cent and the abdomen was explored under general anaesthesia. A growth about 14-cm. in diameter covered by greater omentum was located adjacent to the ileum arising from its antimesenteric border. The mass, partly solid and partly cystic, had adhesion to the parietes. The greater omentum and the mesentery were studded with small nodules. Biopsy was taken from such a nodule and the main mass along with a portion of the ileum and the greater omentum, was removed. The resected gut was repaired by end-to-end anastomosis.

Postoperatively the patient received a course of cyclophosphamide 200 mg. IV daily, the total dose be-

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Nilratan Sircar Medical College and Hospital, Calcutta

*M.B.B.S., Ph.D. (Cal.), Reader in Pathology and Bacteriology

**M.B.B.S., F.R.C.S (Eng. and Edin.), Assistant Professor of Surgery

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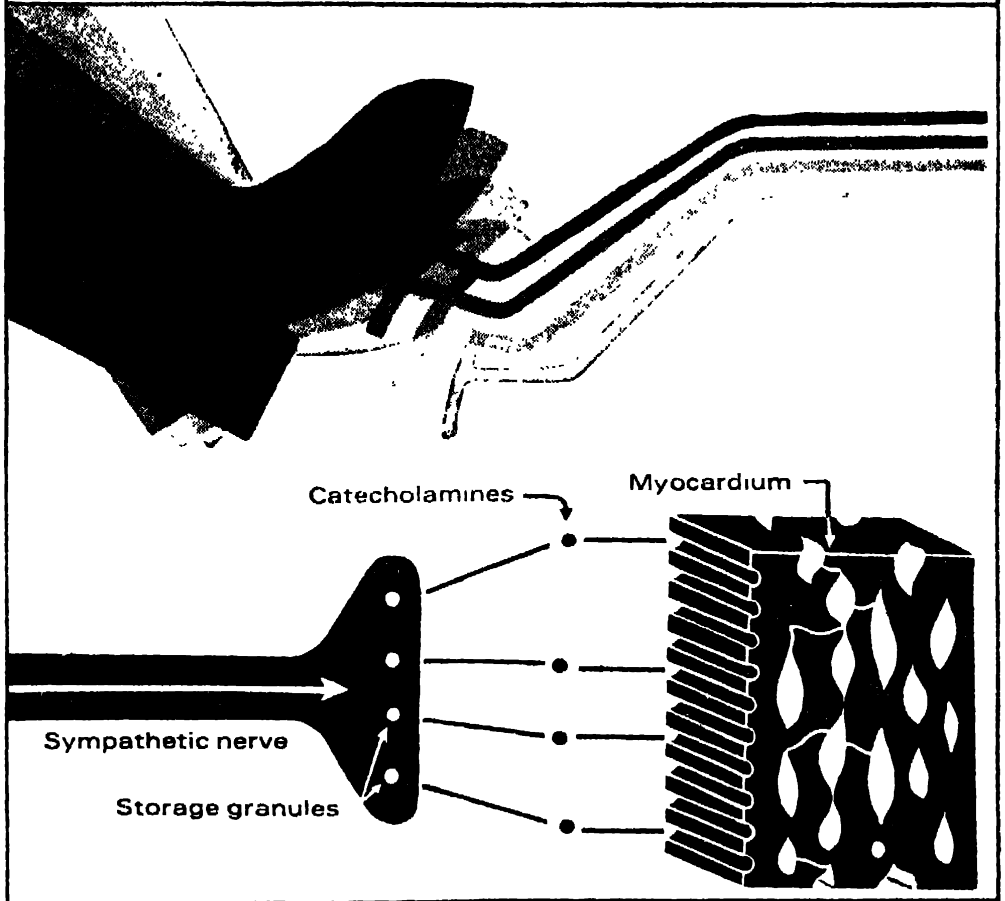

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ing 2 g. along with repeated blood transfusions. He was discharged on the 14th day after surgey. He is being checked regularly and is asymptomatic for over 8 months. He still has no cutaneous manifestation.

Pathology—The main mass, oval in shape, mostly firm in feel, was partially covered by a membrane. The biopsy bit felt firm. Tissues from the main mass and biopsy bit were fixed, processed and sectioned in routine manner. Sections were stained by haematoxylin and eosin and also for reticulin fibres. The growth had bundles of spindle-shaped cells, often with bizarre nuclei. This fibroblastic tissue was intercepted by irregular vascular spaces and had scattered inflammatory cell infiltration therein (Fig. 1, H. & E., × 70). Small vascular slits were mostly without any endothelial lining but contained intraluminal erythrocytes. Vascular spaces, lined by endothelial cells, of capillary size and often irregularly cavernous in type, amidst stroma containing lymphocytes, plasma cells and a few neutrophils were prominent features of the bigger mass (Fig. 2, H. & E., × 300).

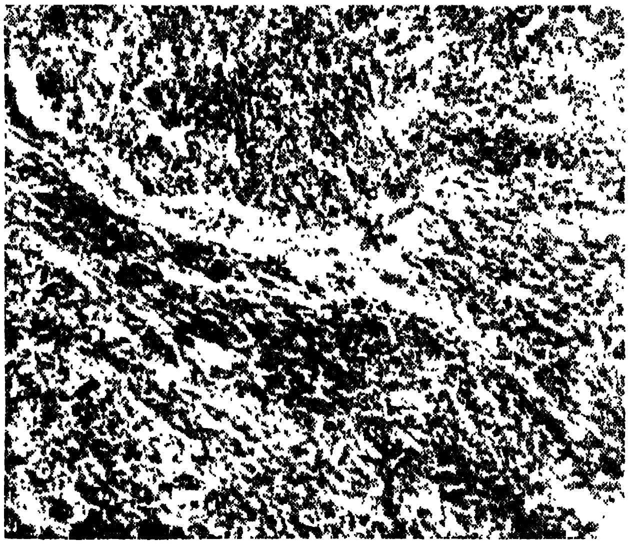

Fig. 1—Showing Fibroblastic Nature of the Lesion with Many Vascular Spaces and Diffuse Cellular Infiltration in Microphotograph

DISCUSSION

Although Kaposi's sarcoma is primarily a progressive cutaneous lesion, often multiple in nature, it may occasionally occur in any organ. Gastro-intesttinal tract, mesenteric lymph nodes, liver and lungs are the common extra-cutaneous sites, frequently with and infrequently without associated cutaneous lesions. However, visceral lesions are extremely rare and mostly asymptomatic. Ecklund and Valaitis (1962) during an autopsy study recorded visceral involvements in 10 per cent of the cases and these were mostly asymptomatic during life. The present case was symptomatic for 3 months prior to hospitalisation and developed severe anaemia and lost considerable body weight during this period. At operation multiple nodules were found in the greater omentum and mesentery, along with a big mass arising from the ileum. At the beginning it was thought to be a case of appendicular lump; pre-operative diagnosis was lymphosarcoma of the ileocaecal region. Only from the histology it became apparent that the lesion was a visceral type of Kaposi's sarcoma.

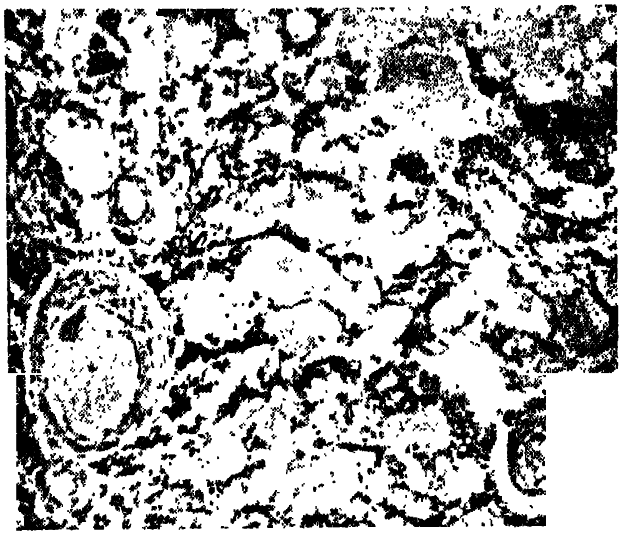

Fig. 2—Showing Some Well-formed Vessels and Others Resembling Incomplete Cavernous Spaces with Scanty Stroma Containing Inflammatory Cells in Microphotograph

Kaposi's sarcoma occasionally occurs along with lymphoma and mycosis fungoides (Lever, 1967). But in Naik's series (*loc..cit.*) of 59 cases, none had associated lymphoma or mycosis fungoides. In the present case there was no lymphoma although the provisional diagnosis was lymphosarcoma.

A significant male predilection for this malady has been stated (Templeton, 1972) and male : female ratio is considered to be 10 : 1 (Allen, 1971). Although no age is immune from this disease, majoriy occurs from the 5th to 7th decades (MacCarthy and Pack, 1950; Cox and Helwig, 1959). The present case belongs to this susceptible group. Although a slowly growing disease, often present for 25 years, the life expectancy in majority of the patients is between 5 and 10 years (Allen, *loc. cit.*). Death occurs due to deep infiltrations from cutaneous lesion, haemorrhage from intestine and lung lesions, intercurrent infections, extensive visceral involvement and rarely from complicating lymphoma. The present case is free from recurrence or any cutaneous manifestation for about 8 months following surgery and chemotherapeutic measures.

SUMMARY

A Hindu male aged 45 years, had Kaposi's sarcoma of the small intestine along with multiple mesenteric lesions without cutaneous manifestation. The growth was removed and the patient received a course of

cyclophosphamide postoperatively. He has remained asymptomatic for about 8 months.

ACKNOWLEDGMENT

The authors are grateful to the Principal-Superintendent, Nilratan Sircar Medical College and Hospital, Calcutta for allowing to report the case and to Dr. S. K. Sarkar, Professor-Director, Department of Pathology and Bacteriology, for his kind help.

Endoxan (Khandelwal) brand of cyclophosphamide was used in the case reported.

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2

Pneumatosis Intestinalis

R. CHAKRAVARTHI*

Pneumatosis intestinalis is an uncommon condition, characterised by the presence of multiple gas-filled cysts in portions of gastro-intestinal tract and occasionally in other organs of the abdominal cavity. The condition also has been called intestinal emphysema, gas cysts of the intestine, bullous emphysema of the intestine, pneumatosis, or pneumatosis cystoides intestinalis. The combination of pneumatosis intestinalis, hepatodiaphragmatic interposition of colon and duodenal ulcer is extremely rare.

CASE REPORT

A 40-year-old male was admitted with a history of abdominal pain of 8 years' duration and vomiting undigested food for 3 years. There were no episodes of haematemesis or melaena.

Examination—Physical examination revealed an emaciated, dehydrated patient with classical signs of duodenal ulcer and obstruction and an obvious visible gastric peristalsis. No lump could be palpated in the abdomen.

Investigations—Barium meal study showed a markedly dilated stomach with improper filling of the duodenal cap (Fig. 1). Routine skiagram of chest showed interposition of segment of colon between the right dome of diaphragm and the liver (Fig. 2).

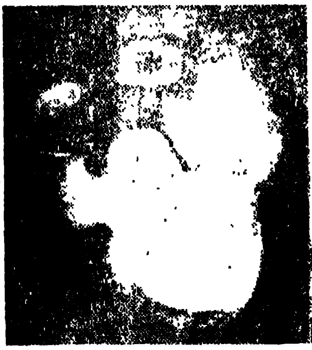

Fig. 1—Showing Dilated Stomach and Irregular Duodenal Cap in Barium Meal X-ray

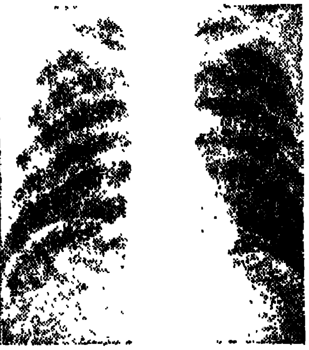

Fig. 2 Showing Hepato-diaphragmatic Interposition of Colon in X-ray Chest

Surgery—Laparotomy done through upper midline incision showed a dilated stomach and a cicatrising ulcer in the anterior wall of the 1st part of duodenum. About 3 feet away from the ileocaecal junction, the ileum was found to contain numerous subserous gas cysts. These cysts (each being of the size of a small pepper) were closely packed and present all round the circumference of the bowel including the antimesenteric border. The mesenteric border and the leaves of mesentery were free. The rest of the small bowel and the colon looked externally normal. In view of duodenal ulcer with marked stenosis, posterior retrocolic gastrojejunostomy was done.

Follow-up—Barium meal study after 6 months showed a functioning gastrojejunal anastamosis and multiple submucosal gas cysts in the transverse colon (Fig. 3).

DISCUSSION

The first description of pneumatosis intestinalis in a human cadaver is by Du Vernoi in 1730. It is Bang who in 1876 gives the first complete description of an autopsied case (Reyna *et al.*, 1973). Kushlan (1962) showed a collection over 300 cases of pneumatosis

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*M.S., F.I.C.S., Honorary Associate Professor of Surgery, Madurai Medical College and Honorary Surgeon, Erskine Hospital, Madurai

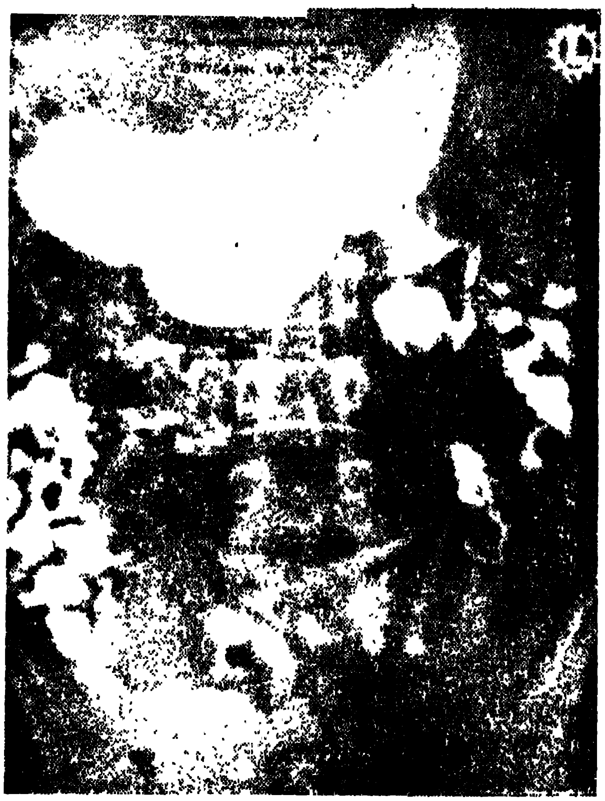

Fig. 3—Showing Barium Meal Follow-through with Gastrojejunal Anastomosis and Numerous Submucous Gas Cysts in the Transverse Colon

intestinalis. Koss (1952) gives a complete review of the subject, reviewing about 213 cases.

Hepatodiaphragmatic interposition of the colon, *per se*, is extremely rare. Kolju in 1938 reports an incidence of 29 cases in 20000 roentgenograms and Hubacher reports an incidence of 17 in 20000 roentgenograms (Feldman. 1957). This rare anomalous position of the colon can be diagnosed only by roentgenoscopy. A paper by Choussat and Choussat-Clausse (1937) is frequently quoted in the roentgenologic literature. The possible causes of such an interposition have been classified by these authors into hepatic, diaphragmatic and intestinal. The hepatic factors include ptosis of liver, small liver, or relaxation of its suspensory ligaments. The diaphragmatic factors are, an abnormally high diaphragm, paralysis of diaphragm or changes in intrathoracic pressure. The intestinal factors include abnormal mobility of colon due to congenital causes, magacolon and abnormal accumulation of gas in the colon, causing upward displacement of the diaphragm. Two types of interpositions are recognised : (i) persistent and (ii) transient or sliding. The interposition has been persistent in the majority of cases. One of the important intestinal factors responsible for hepatodiaphragmatic interposition of the colon is pneumatosis intestinalis and this is known as Chilaiditi sign (Goldstein 1964).

SUMMARY

A case of pneumatosis intestinalis, associated with hepatodiaphragmatic interposition of colon and duodenal ulcer is presented. Pneumatosis intestinals *per se* does not require any surgical correction. The factors associated with hepatodiaphragmatic interposition of colon and its rarity have been stressed.

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3

Conjunctival Abscess due to *Dirofilaria conjunctivae*

MOHAN GEORGE*, CYRIAC KURIAN**

Parasitic worms of the genus dirofilaria have been reported from several animals, especially dogs. A few cases of human infection with the early stages or pre-adult stages were also reported. In the genus dirofilaria, *D. conjunctivae* is a rare species having been recorded previously on very few occasions, as responsible for conjunctivitis.

Faust *et al.* (1952) gave an account of the unusual filarial infections including *D. conjunctivae* in man. Faust and Russel (1953) described these worms as well as the signs and symptoms. Soulsley (1973) also refers to the symptoms due to *D. conjunctivae* infections. An elaborate account of *D. conjunctivae* and the histopathological changes due to this infection has been given by Pacheco and Schofield (1968).

Perhaps the latest reference on *D. conjunctivae* is that of Joseph *et al.* (1977). Here, they mention about a case encountered in the Government Hospital, Chirayinkil, Kerala, in June 1976, giving a short account of the morphological characters of the extracted worm. This is the first case recorded from Kerala and India.

Immediately after this report, the authors came across another case of conjunctival abscess due to *D. conjunctivae* from the same locality in July 1976

Government Ophthalmic Hospital, Trivandrum
*M.B.B.S., D.O., Postgraduate Student
**M.B.B.S., Postgraduate Student

and this happens to be the second case from Kerala. The present paper mainly comprises the case report and the relevant pathological conditions, especially those not recorded by the previous authors.

CASE REPORT

Sathyabhama, an 18-year-old, Hindu, female, came to the Outpatient Department of the Government Ophthalmic Hospital, Trivandrum, with the complaints of pain, redness, watering, irritation and swelling in the left eye of one month's duration. She was referred from the Government Hospital, Chirayinkil. There was no past history of fever and rigor at night. There was also no relevant family history.

Examination—On examination, general health and nutrition were good. There was no lymphoedema, or lymphangitis, no subcutaneous nodule or abscess.

On local examination: Right eye—Anterior segment was normal. Ocular movements were full. Left eye—There was a swelling of 1 cm. diameter in the inferonasal aspect of the bulbar conjunctiva immediately above the lower fornix. The conjunctiva over the swelling was congested. The swelling was movable to some extent but seemed to be confined to the subconjunctival tissue. There was no tenderness or translucency. Rest of the anterior segment was normal. Ocular movements were full.

Visual acuity—6/6 in both eyes, fundi—normal. Slit lamp examination: Right eye—normal, left eye—cornea was normal. There were neither keratic precipitates nor any aqueous flare. The swelling was found to be limited to the subconjunctival tissue and not fixed to the sclera. Episcleral veins were not congested The swelling was not transilluminant, either by transconjunctival or trans-scleral method, and was found to be a subconjunctival abscess.

Management—The abscess was incised, and a thin long, live, actively motile worm (Fig. 1) wriggled out of the lesion along with the pus. The abscess was drained and the conjunctival sac was irrigated with sterile boric lotion. Oxytetracycline hydrochloride 1 per cent ointment was applied. A pad and bandage was put.

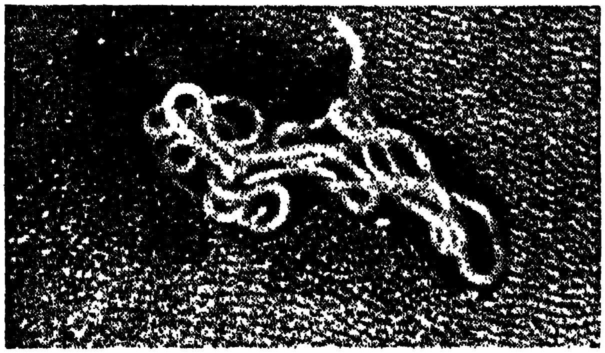

Fig. 1—Showing the Extracted Worm

Investigations—Repeated night blood smears for 3 consecutive days after the operation were negative for microfilaria. Blood picture was normal except for eosinophilia of 14 per cent.

Follow-up—The patient was given a full course of diethylcarbamazine citrate 100 mg. on first day, 100 mg. 12 hourly on 2nd day and thereafter 100 mg. 8 hourly for 19 days. The signs and symptoms completely disappeared and the eye became normal. In this case also, there was only a single worm present.

DISCUSSION

The infection with *D. conjunctivae* is a rarity, and the first report from Kerala (India), was from Chirayinkil by Joseph *et al.* (*loc. cit.*), same place wherefrom the present case is being reported. This naturally is of much epidemiological importance and a full fledged local survey should be done

Considering the fact that the previously reported case was also from the same locality, the authors devoted more attention to study the case in detail. The present case differed from the previous one in that this was a subconjunctival abscess with the usual complaints of pain, redness, and watering. The live worm was removed from the subconjunctival abscess.

The morphological characters of the worm is identical with that described by Joseph *et al* (*loc. cit.*). However, the present worm was 14.5 cm. long. In both cases the worms were encountered in females.

SUMMARY

A case of subconjunctival abscess produced by *D. conjunctivae*, seen in the Ophthalmic Hospital Trivandrum, has been reported. The patient was an 18-year-old female from Chirayinkil.

ACKNOWLEDGMENT

The authors are grateful to Dr. K. S. Subramaniam, Director and Professor of Ophthalmology and Dr. A. N. Varma, for the valuable suggestions and encouragements. Our thanks are also due to Sri A. Joseph, Assistant Professor, Social and Preventive Medicine, Medical College, Trivandrum, for the identification of the specimen and for guidance. We are also grateful to the Principal, Medical College, Trivandrum, for permitting us to publish this case report. Hetrazan (Lederle) brand of diethylcarbamazine citrate was used in this case.

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JOURNAL OF THE
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CALCUTTA, SEPTEMBER 1, 1978

Diabetes Mellitus in Pregnancy

The real problem of diabetes mellitus in pregnancy today is the high perinatal mortality. The advent of the insulin era has not only added years to the life of diabetic mothers but along with antibiotics, selective early termination and better surgical techniques has also produced a dramatic improvement in the maternal mortality rate. But, it must be borne in mind that overt diabetics still constitute a high risk group because they have a major medical disease and an increased likelihood of having a major operative delivery. However, the figures of perinatal mortality continue to harass the obstetricians' mind. The maternal mortality may still rise, if White's[1] classification is not taken into account and if termination of pregnancy is not done early in Group E, F and R cases of White[1]. This classification of White[1] is probably in conformity with the present classification of juvenile onset of diabetes mellitus and maturity onset of diabetes mellitus (modified as type I and type II). It is noteworthy that maternal mortality is not high, except in the so-called "neglectors" of Pederson's series[2]. One cannot provide the same assurance for perinatal mortality. The causes for perinatal mortality, as for instance, pre-eclamptic toxaemia, hydramnios, congenital anomalies, sudden maternal hyperglycaemia or hypoglycaemia with ketosis may precipitate perinatal loss in overt diabetics of the neglector group or with failure to detect gestational diabetes or even in chemical diabetes. Hence, the necessity of diagnosing not only the overt diabetics but patients in the prediabetic state as well. The diabetogenecity of pregnancy is universally accepted and is attributed to the presence of circulating insulin antagonists like synalbumin[3], growth hormone[4], oestrogen[5], progesterone[6], adrenocortical steroids[7] and cortisol[8]. The chorionic somatomammotropin or human placental lactogen[9] have been especially incriminated. The recent study[10] at the Postgraduate Institute, Calcutta aims at predicting the category in which a mother with a diabetic predisposition belongs and prognosticates the outcome of her pregnancy. The study aims at diagnosis of the entire profile of diabetes mellitus complicating pregnancy particularly in its early phases, namely, gestational diabetes mellitus, latent or chemical diabetes mellitus and brings out in bold relief the existence of carbohydrate intolerance in pregnancy. The oral glucose tolerance test[11-15], the intravenous glucose tolerance test[16], the intravenous tolbutamide response test[17], the intravenous insulin sensitivity test[18] and the cortisone load test[19] are all accepted diagnostic procedures which help to categorise the patient with a diabetogenic potential on the basis of the underlying aberration.

However, the recent emphasis on the insulin like substances e.g., synalbumin in the blood of genetic suspects, detection of HL-A8 and W-15 histocompatibility antigens, abnormal levels of dehydro-ascorbic acid and ear lobe studies to demonstrate micro-angiopathic lesions are all non-glucose markers for the early detection of diabetes mellitus. These tests, it is suggested, act as pointers to prediabetic state even before the insulin sensitivity test detects evidence of insulin antagonism. These tests, if performed in conjunction, help to evaluate the carbohydrate status at an earlier date and the earlier the detection better the management of the case, and consequently lower the perinatal loss. It is suggested that in the light of this information, the prognostically bad signs of pregnancy (PBSP) of Pederson[2] may further help to discriminate and help to take action before it is too late for perinatal salvage.

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The recent follow up studies of Gun *et al.*[20], published elsewhere in this issue, on the incidence, diagnosis and management of these cases, all stress the need for early diagnosis of gestational diabetes mellitus and their follow-up studies. The study of Majumdar *et al.*[10] shows a figure of 17.14 per cent of gestational diabetes mellitus in patients with diabetogenic potentials which is similar to the figures of Burt and Leake[21] (.25 per cent). It was seen in the study that in these gestational diabetics, the glucose intolerance was initiated by insulin antagonism and if of a major degree, left its mark on the islet secretory capacity, so that the insulin antagonism was perpetuated by islet inadequacy. Thus, the necessity of long term follow-up and vigilance.

The management of the pregnant diabetic is still by insulin, mostly soluble, although some prefer long acting insulin with soluble insulin in cases where high dose regimens are necessary. But nothing is better than control of the diabetic state by proper distribution of the different facets of diet. While chalking out a balanced diet chart, the factor of lowered renal threshold should be kept in mind and in later months, a proper adjustment by an extra dietary allowance of carbohydrate is necessary.

The termination of pregnancy in the early months is indicated in E, F and R group of White[1] and especially where the ophthalmoscopy findings suggest venous kinking. The neglectors of Pederson[2] are also better terminated in the early months.

The traditional time to deliver a diabetic is derived from evidence of an increasing risk of intra-uterine death beyond the 36th gestational week. Termination by caesarean section is the general practice, except in some multigravidae where obstetric factors do not counter it. The continuation of pregnancy up to term with biochemical control of diabetes mellitus and also backed by placental function tests[22, 23] and the maturity tests like lecithin : sphingomyelin ratio[24] may have its supporters but the majority still prefers early interference. Pederson's[2] bad prognostic signs may compel termination as early as 34th week and ultimate salvage in these cases will depend on the available paediatric care. The problem of macrosomia is not so pressing now due to better biochemical control of diabetes mellitus as also is the rarity of the characteristic cherubic appearance of the baby. However, the well known causes of macrosomia are still being debated and entry of synalbumin or insulin is said to be the cause. The latter is supported by the finding of elevated levels of immunoreactive insulin (IRI). Respiratory distress syndrome, hypoglycaemia and respiratory acidosis are all attributed to be causes of neonatal mortality and they should be properly managed. The role of ante partum and post partum corticosteroid therapy in the prevention of respiratory distress syndrome is more or less established.

As oral contraceptives lower the glucose tolerance, they are contra-indicated in all patients with proven or suspect carbohydrate intolerance.

The pathology of the diabetic process in the placenta has been extensively studied and diabetic vascular changes (micro-angiopathy) in the placenta, thrombosis of the chorionic veins and excessive deposition of glycogen in the placenta has been demonstrated. Burstein *et al.*[25] observed end arteritis in the placental arteries with deposition of mucopolysaccharide. The syncytial buds and stroma show arborisation of PAS-positive fibrils. There was a positive correlation of these findings with foetal loss.

However, all said and done, our answer to the problem of perinatal mortality is early diagnosis and this will definitely be useful in giving proper obstetric counselling to patients with diabetogenic potentials.

SREEMANTA BANERJEA

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CURRENT TOPIC

Is Radioactive Iodine Uptake Test Obsolete ?

K. P. POULOSE*

In the early nuclear medicine era, radioactive iodine (^{131}I) was the most popular radionuclide. Hertz *et al.* (1938) demonstrated the avidity of rabbit's thyroid to iodides. Hamilton and Soley (1939) performed the first human thyroid uptake test. Since then, the radioactive iodine uptake (RAIU) study is widely used to assess the functional status of the thyroid gland and is almost a routine procedure now along with the thyroid scan.

RADIOACTIVE IODINE UPTAKE (RAIU):

Experience gathered from studies in thousands of patients brought to light a multitude of factors influencing the RAIU, including various drugs and disease states. The most common factors influencing RAIU are enumerated as follows:

Factors increasing RAIU are: Thyrotoxicosis; deficiency goitre. intrathyroidal biochemical disturbances; recently discontinued antithyroid drugs; after TSH administration and drugs like lithium, elipten.

Factors decreasing RAIU are: Hypothyroidism; thyroiditis acute, subacute or chronic lymphocytic; after iodides, thyroid extracts, sulphonyl ureas, PAS, anti-coagulants, ACTH, salicylates, mercurials, antithyroid drugs, butazolidine, sulphonamides, cough mixtures containing iodides, antidiarrhoeal agents containing iodohydroxyquinolines; after contrast studies with radio-opaque dyes; and extensive carcinoma thyroid.

Besides the disadvantages of various interfering factors, the patient has to come three times to the nuclear medicine laboratory (one for ^{131}I administration, second visit for 2-hour uptake and the third for 24-hour uptake) for RAIU; the test cannot be done in pregnant women or in patients who have had iodinated contrast studies which influence RAIU up to 2-6 months. Even, carcinoma of the thyroid is reported after diagnostic ^{131}I uptake (Pilch *et al.*, 1973). However, there are many reports establishing the fact that there is no relationship between ^{131}I and the incidence of cancer or leukaemia in children or adult even after therapy with ^{131}I for hyperthyroidism (Hayek *et al.*, 1970). The normal range of RAIU values have come down considerably in many laboratories and this is believed to be due to increased iodine content in the baked bread (Pittman *et al.*, 1969; Sachs *et al.*, 1972; Hamburger, 1975). One should also be cautious to interpret the low RAIU values since many patients may not provide any history of ingestion of drugs unless specific inquiry is made. Similarly, in areas where iodine deficiency goitre is prevalent, a high RAIU should not be taken as indicative of thyrotoxicosis. One must repeat RAIU after tri-iodothyronine or thyroxine suppression to confirm the diagnosis; the thyroid is suppressible in deficiency goitre and not in Grave's disease (Poulose and Padmanabhan, 1972).

COMPETITIVE PROTEIN BINDING ASSAY (CPB) AND RADIOIMMUNOASSAY (RIA):

With the advant of more sensitive and specific laboratory procedures like competitive protein binding assay (CPB) or radioimmunoassays (RIA) which detect various protein and non-protein hormones in the blood to the picogram level, the need for RAIU to assess the thyroid function has left the forefront to the backstage. Procedures are now in vogue that determine the serum concentration of thyroxine (T-4), tri-iodothyronine (T-3), thyroid binding globulin (TBG) and TSH, which are more helpful than the RAIU. Compared to the RAIU, these *in vitro* CPB or RIA procedures are simple and specific. No internal administration of radionuclides are necessary, thus avoiding radiation exposure to the patients. However, as in RAIU, there are many factors which influence the T-4 or T-3 values by CPB or RIA (Poulose, 1973a).

An impartial perusal of the two different procedures (RAIU *vs* RIA or CPB) will reveal that both of these tests are complementary and not competitive. These tests assess different parameters of thyroid function. RAIU reveals the avidity of thyroid to iodine and thus, indirectly, determines the functional status, but does not give any information about hormonogenesis, while T-4 and T-3 give information about the serum hormone concentration which indirectly denotes the level of hormone production.

Despite these disadvantages of RAIU, there are certain situations enumerated below where RAIU gives very valuable information towards arriving at a definite diagnosis.

SPECIFIC INDICATIONS OF RAIU:

1. *Subacute or occult thyroiditis* (SAT)—Patients with thyroiditis often present with mild or moderate neck pain, firm, diffuse or unilateral enlargement of the thyroid and in occult cases there may not be any clinical signs of inflammation. Often, these patients have a high T-4 and high free thyroxine index, thus mimicking early thyrotoxicosis. The most helpful test in these instances to diagnose SAT is RAIU. The RAIU in the active phase of the disease will always be low because of the inflammatory reaction of the thyroid tissue and also due to the effect of diminished TSH secondary to the discharge of more thyroid hor-

Medical College Hospital, Trivandrum, Kerala
*B.Sc., M.D., F.A.C.P., F.I.C.A., F.C.C.P., F.A.C.A., Associate Professor of Medicine and Head, Isotope Division

mones into the circulation. The response of RAIU after TSH stimulation is negligible; however, this depends upon whether the entire gland is involved or not in the inflammatory process.

2. *Chronic lymphocytic thyroiditis (Hashimoto's disease) with toxic manifestations*—Patients with Hashimoto's disease can occasionally present with thyrotoxic symptoms, but this does not always signify supervention of Graves' disease (Hashitoxicosis). There is so much overlapping of clinical, laboratory and histological features in the two entities namely, Hashimoto's disease and Hashitoxicosis, making clinical distinction difficult. In these circumstances, the RAIU classically differentiates patients with associated Graves' disease from those without but have transient symptoms of thyrotoxicosis. In the former, the RAIU will be high while RAIU is low in the latter. Patients with Hashitoxicosis definitely require prolonged antithyroid treatment while those with low RAIU do not require any treatment and the thyrotoxic symptoms subside spontaneously (Gluck *et al.*, 1975).

3. *Factitious hyperthyroidism*—There are several instances where medical personnel, like nurses, nursing aides, etc., who have easy access to thyroid medications malinger for unknown reasons by taking large doses of thyroid tablets daily. They manifest symptoms of hyperthyroidism such as palpitation, tachycardia, sweating and tremor. Although these patients do not have an enlarged thyroid or eye signs, serum estimation of hormones will reveal high T-4 or T-3 or both depending on the specific medication the patient is taking. In these patients the presence of a very low RAIU will clinch the diagnosis. In genuine hyperthyroidism, the RAIU is always high and will not be influenced by any exogenous medication, since the gland is autonomous. The only differential diagnosis is SAT in which case the patients (T-4 or T-3 may be high) may present with neck pain, thyroid enlargement, low grade fever and raised ESR.

4. *Calculating the therapeutic dose of ^{131}I for hyperthyroidism*—Conventionally, physicians follow some guidelines to calculate the ^{113}I dose in treating hyperthyroidism, viz., the size of the gland and 24-hour uptake. It is estimated that 150 μCi of ^{131}I per g. of thyroid gland will give approximately a radiation dose of 7000R which is sufficient enough to arrest hyperfunction of the thyroid follicles. In order to have a concentration of 150 μCi/g. of thyroid gland, one should know the 24-hour ^{131}I uptake to calculate the amount of ^{131}I to be administered orally. The formula followed is:

$$\frac{\text{wt in g.} \times 150 \times 100}{\text{24-hour uptake} \times 1000} \quad \text{mCi of } {}^{131}\text{I}$$

However, there are many physicians who give an arbitrarily low ^{131}I therapy dose to avoid subsequent hypothyroidism (Poulose, 1973b).

5. *Dyshormonogenesis due to intrathyroidal enzyme deficiencies*—This disorder is congenital and the patients may present with a larger goitre and symptoms of hypothyroidism. Because of the enzyme deficiencies, organification is impaired, resulting in decreased synthesis of thyroid hormones. Organification includes the combination of iodine trapped by the thyroid gland with tyrosine components of thyroglobulin to form mono-iodotyrosines (MIT) and di-iodotyrosines (DIT). Depending on the stage where organification is affected, large amounts of mono- or di-iodotyrosines are present in blood. These patients will usually have a high RAIU. A perchlorate discharge test will confirm the diagnosis of dyshormonogenesis (Werner and Ingbar, 1971). Perchlorate discharge test is employed to find out whether complete hormonogenesis has occurred in the thyroid gland. Perchlorate ion inhibits the uptake of iodide by the thyroid and discharges thyroidal iodide which has been taken up but not organically bound (Werner and Ingbar, *loc. cit.*). One other condition which comes in the differential diagnosis is Hashimoto's disease, where perchlorate discharge test is positive in about 50 per cent of patients. But in patients with Hashimoto's disease and hypothyroidism, RAIU will always be low.

6. *Suppression test*—Werner's suppression test (Werner and Spooner, 1955) is to evaluate whether the thyroid gland is autonomous or under the influence of TSH. The value of Werner's suppression uptake test which involves baseline RAIU and repeat RAIU after a one week course of T-3 in establishing the diagnosis of euthyroid Graves' disease, is universally known. Although, theoretically, T-4 values before and after T-3 administration should give the same information as RAIU, in practical experience it is not so. In a study of 20 patients, suspected to have euthyroid Graves' disease who had both RAIU tests and T-4 estimation (RIA), it was found in the study that even in patients who showed a 50 per cent suppression in the thyroid uptake after T-3, the reduction in T-4 concentration was not consistent. Moreover, there was never an instance of 50 per cent reduction in T-4 values as in the case of iodine uptake study. This discrepancy could be easily explained because the T-4 half life in plasma is about 7 days.

CONCLUSION

At present in India, there are only a few laboratories undertaking the RIA or CPB procedure, which, it is hoped, will soon be followed nationwide. In these circumstances, RAIU is the only procedure besides the thyroid scan available to the vast majority of physicians to corroborate their clinical diagnosis of various thyroid disorders. Whatever may be the advantages of the currently available laboratory procedures, clinical impression is the most important criterion in the diagnosis and management of patients with thyroid diseases.

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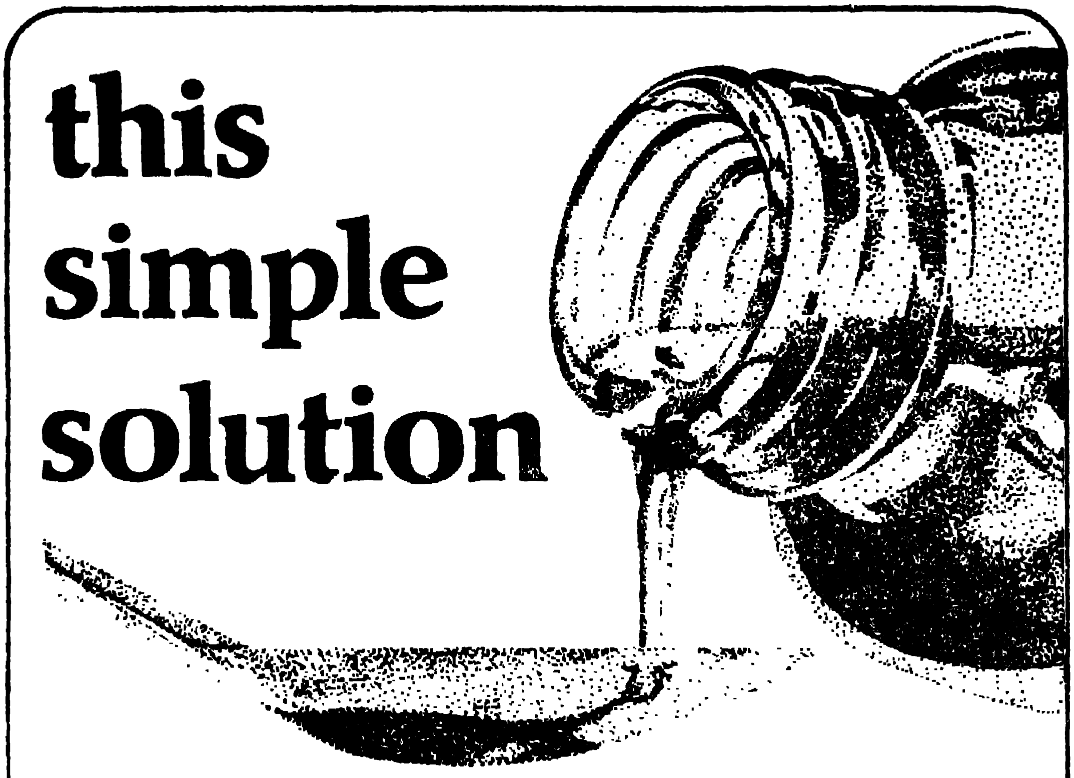

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NOTES AND NEWS

Drugs Bulletin

The Department of Pharmacology of the Postgraduate Institute of Medical Education and Research, Chandigarh, is bringing out in collaboration with other departments of this institute and the Ministry of Health and Family Welfare a quarterly journal styled as 'Drugs Bulletin'. The journal publishes articles on current therapy and also information on generic names, brand names and prices of drugs available in India. Those interested may contact Dr. V. S. Mathur, Editor, 'Drugs Bulletin', Department of Pharmacy, P.G.I.M.E.R., Chandigarh.

Schroff Memorial Award, 1978

The Schroff Memorial Award instituted by the Indian Hospital Pharmacists Association, New Delhi, has been conferred on Smt. N. S. Gayatonde, Superintendent of Pharmacy and Central Sterile Supply Department, Jasloke Hospital, Bombay, for her outstanding contributions in the field of hospital pharmacy.

Advanced Course in Laryngeal Disorders

An advanced course in Laryngeal Disorders is being organised by the Association of Otolaryngologists of India, West Bengal State Branch, on November 5-11, 1978 at Chittaranjan Cancer Hospital, Calcutta. Applications from candidates should reach by *October 8, 1978.* Detailed information about the Course may be had from one of the following: Dr. N. R. Sarkar, Convener, 1-A, Elgin Road, Calcutta-20 or Dr. L. M. Ghosh, Hony. Secreatry, Association of Otolaryngologists of India, West Bengal State Branch, 304/1, Sarat Chatterjee Road, Howrah.

CORRESPONDENCE

The Editor is not responsible for the views expressed by correspondents

Enteric Carrier

SIR,—Typhoid fever is a specific infection of the small intestine producing inflammatory change in the lymphoid tissue of the bowel. It is significant that during the 1st week, the organisms are excreted through the liver and biliary passages and enter the small intestine in large numbers in the bile. It is well-known that the gall bladder is invariably infected during the early phase and later may be the nidus of bacterial growth, with or without distinct inflammatory changes, and is responsible for the carrier state of the disease.

Autopsy cultures from the gall bladder bile from patients dying of typhoid during the later stages of the disease have not always yielded positive growth of the enteric organisms, while motion cultures have been positive. In one instance, the motion culture remained positive for months together in a patient who had cholecystectomy done before the attack of typhoid fever.

This makes us believe that the gall bladder need not be the site for the organisms to produce a carrier state. It is evident that the organisms remain in the parenchymatous cells of the liver of the carrier for (1) the portal of entry for the bacilli are from the sinusoids through the liver parenchyma into the biliary ductules; (2) the sinusoids will remain infected as long as there is bacteraemia; and (3) the gall bladder can get infected through the infected bile as well as by direct arterial infection of its wall and arterial infections can give rise to cholecystitis

With these surmises in mind, a pilot study was conducted. Liver biopsies from proven cases of enteric fever were studied. Sections were stained by H. and E. and also by Twort's modification of Gram's method. A control for the staining methods was done by processing non-enteric liver tissues after injection of one piece with an emulsion containing both Gram-positive and Gram-negative organisms and another with Gram-negative bacilli only. In the sections of the enteric liver Gram-negative bacilli in the parenchymatous cells were found.

Only 4 cases were studied. Autopsies have to be reviewed and statistical surveys should be conducted.

I am, etc.,

(Mrs.) V. C. ANGULI, B.Sc., MD.,
F.R.C.Path (Lond.), F.A.Sc.,
Reader and Head of the
Department of Pathology,

Postgraduate Institute
of Basic Medical Sciences,
Taramani, Madras.

REVIEWS

Emergency Medical Practice—By Byomkesh Bhattacharjee, 1977, Manisha Publishers, P-29, C. I. T. Road, Calcutta 700 014, 25 cm. × 16 cm., pp. 16 + 288 + 6, Rs. 36.00.

A sound basis for treatment and a guide to prognosis can be provided only if the correct diagnosis is established. This book stresses on how a prompt tentaitive diagnosis based on a quick clinical evaluation and a few selected investigations can be made to allow immediate introduction of various life-saving measures. In this respect, this book is an honest effort and will remain a handy synopsis to all in the proper management of emergencies.

I would say that medical students, general practitioners as well as physicians will obtain from it both benefit and enjoyment.

DULAL CHANDRA ROY CHOUDHURY

Today's Treatment: 2, Articles published in the British Medical Journal, Ed., Lock, S., 1977, British Medical Association, London, 22 cm. × 14.5 cm., pp. 10 + 221, £ 4.00.

This second volume of the series, a collection of articles published in British Medical Journal in 1976 and 1977, is concerned with three major areas: Endocrine and metabolic diseases, diseases of the cardiovascular system and diseases of the alimentary system, discussed under 27 topics. They cover a wide ground including useful chapters on 'Absorption, distribution and metabolism of drugs,' 'Gastro-intestinal reactions to drugs', 'Drug jaundice' and similar general considerations. The chapter on 'View from General Practice' should prove interesting and instructive to the ilk and induce some to record their own ideas. The approach to treatment is physiological and rational, tailored to the needs and limitations of the general practitioner with balanced blending of current thoughts and promising developments likely to confront the general practitioner in future.

The writing is simple and precise, clear and concise. In short, to the general practitioner the book will provide information and assurance; to the experts, instances of serendipidity. And no book is free from lacunae but on the whole, it is safer to praise than to blame.

B. BHATTACHARJEE

Handbook of Teratology, Volume I, General Principles and Etiology—Edited by James G. Wilson and F. Clarke Fraser, 1977, Plenum Press, New York and London, 25.5 cm. × 16.5 cm. pp. xi + 476, $ 45.

A number of contributors—all reputed workers in their own specialities have joined their efforts in the compilation of this volume. In this volume which is the first of 4 volumes, the editors have restricted themselves to general principles and aetiology.

Teratology, which deals with the study of "abnormal development" is a fascinating subject. It has a long historical background starting from ancient times and this has been exhaustively dealt with in the first section. There is a number of interesting illustrations. The second section deals with the causes of maldevelopment and the authors have probed all possible aetiologic agents—genetic and environmental. It is expected that these observations would be further substantiated in subsequent volumes in which they propose to present the pathogenesis, research procedures, data analysis, etc. The complete works may then well be one of the best treatise on the subject. The references are exhaustive. The presentation is superb. The book is strongly recommended to postgraduate students, research workers and geneticists.

SUNIL GUPTA

Books Received for Review

(Up to 31st December 1977)

Non-Invasive Mechanical Methods in Cardiology and Cardiovascular Dynamics (Bibliotheca Cardiologica 35): Proc. 4th World Congress of Ballistocardiography and Cardiovascular Dynamics, Amsterdam, 1975, Ed., W.J.A. Goelhard, 1976, S. Karger, Basel, pp xx + 271, S. Fr./DM. 142, US $ 54.75

I. A. R.C. Monographs on the Evaluation of Carcinogenic Risk of Chemicals to Man, Vol. 10, Some naturally occurring substances, 1975, pp. 353, S. Fr 38; **Vol. 11**, Cadmium, Nickel, some epoxide miscellaneous industrial chemicals and general considerations on volatile aesthetics, 1976, pp. 306, S. Fr. 34, International Agency for Research on Cancer, Lyon.

Drug-Induced Nutritional Deficiencies—Daphne A. Roe, 1976, AVI, Westport, pp. xi + 272.

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Food, Man and Society—Eds., D. N. Walcher, N. Kretchmer and H. L. Barnott, 1976, Plenum, New York and London, pp. XV + 288, $ 27.00.

Coping with Physical Illness (Current Topics in Mental Health)—Rudolf H. Moos, 1976, Plenum, New York and London, pp. XII + 440, $ 30.00.

Handbook of Tropical Gastroenterology—B. J. Vakil, 2nd ed., 1976, Unichem, Bombay, pp. XV + 477, Rs. 17.00.

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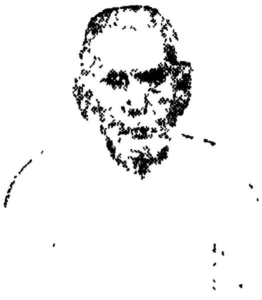
OBITUARIES

Dr. Rameswar Setua

Dr. Rameswar Setua, a former Vice-President of the Midnapur Branch of IMA, passed away on 24-6-1978 Born on 1-7-1893 Dr. Setua qualified as an L.M.P. from Cuttack Medical School in 1918. After serving as a medical officer in several Government institutions including the Gaya Central Jail he joined the former B N Railways (now S. E. Railways) in 1922. On his retirement from Railway service in 1948 he settled at Midnapur town and joined the Sri Ramkrishna Mission Arogya Niketan, Midnapur. He leaves behind his wife and 4 daughters.

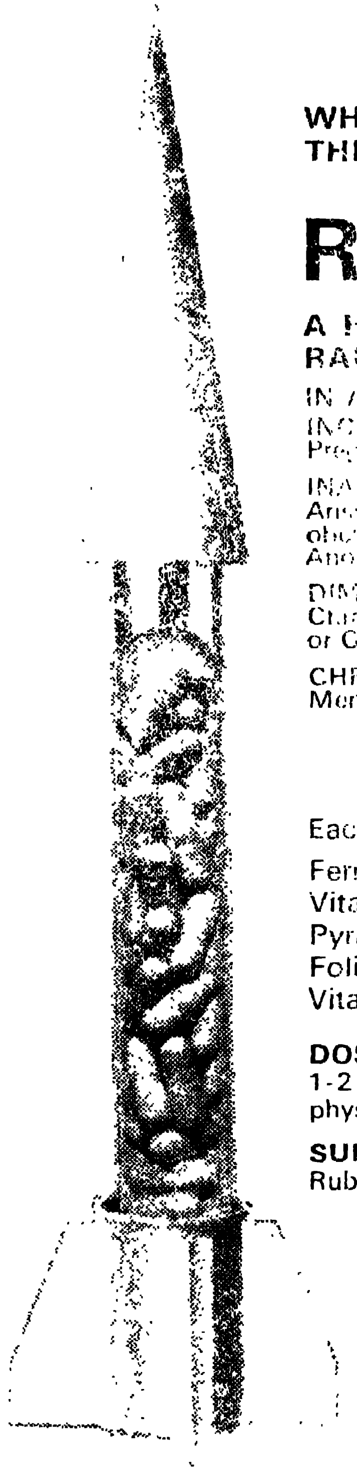


DR. R. SETUA

DR. A. PERI SHASTRY

Dr. A. Peri Shastry

Dr. A. Peri Shastry, President of the Andhra Pradesh State Branch of IMA for 1975-76, passed away on 7-4-1978. Born on 3-5-1903 Dr. Peri Shastry qualified as an L.M.S. and later as an F.C.G.P. He was drawn to the ideals of IMA from the very beginning of his professional career when he stood up against quackery.Later he came to be actively associated with IMA, Kanaseema Branch at Amalapuram. He was the President of the Branch from 1968 to 1975. He was elected member of the State Working Committee of A. P. State Branch for 1973-74 and Vice-President of the State Branch for 1974-75. He had profound interest in the promotion of medical education in his State. He was a founder member of the Medical Education Society and Vice-President of the Governing Body of Rangaraya Medical College, Kakinada.



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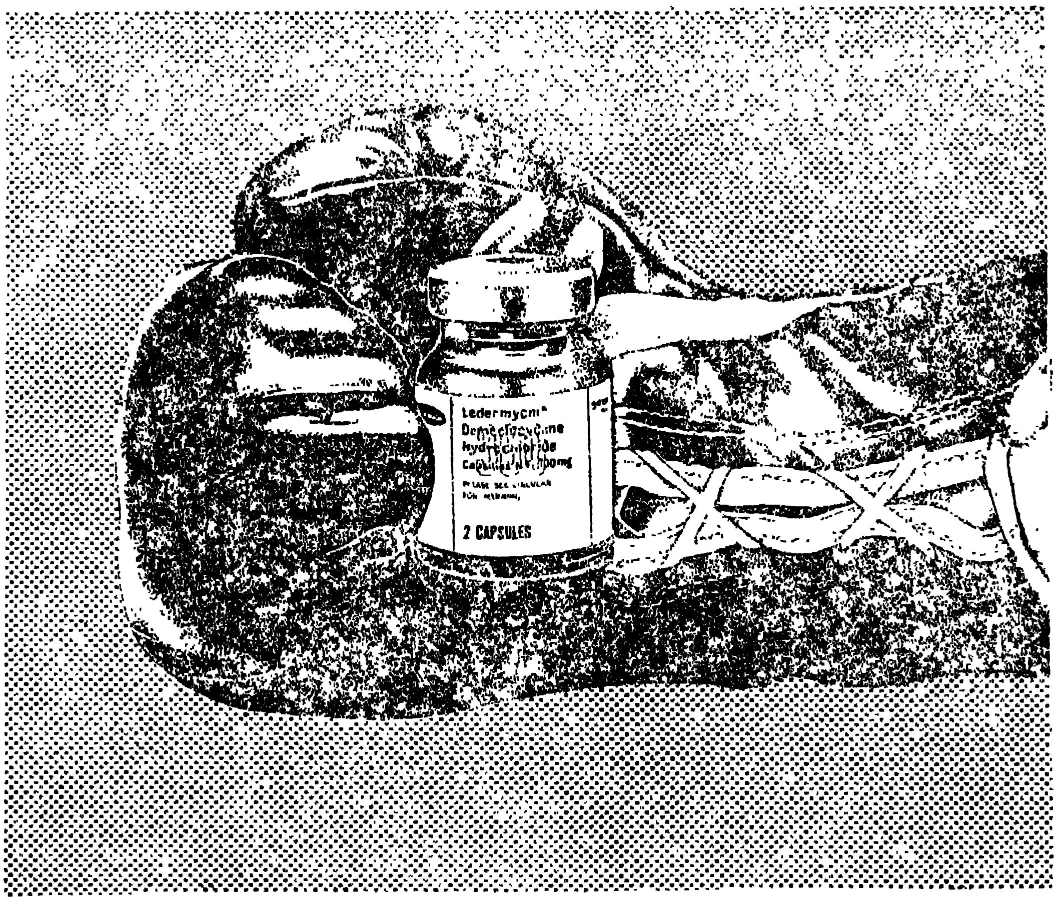

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SUPPLEMENT

Vol. 71, No. 5 : Calcutta : September 1, 1978

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Shah (Ahmedabad); 231. Dr Desai Sumantrai Bhimbha (Bilimora); 232. Dr Hans Raj Sharma (Amritsar); 233 Dr D. S. Rao (Indore); 234 Dr. V. B Golwanker (Indore); 235. Dr. C L. Jhaveri (Bombay); 236. Dr. (Mrs.) Mira Banerjee (Titagarh): 237. Dr. Somdeb Bhattacharya (Calcutta); 238. Dr. R. L. Shah (Rajkot); 239. Dr. Narayan Ch. Banik (Baruipur); 240. Dr Krishna Kishore Chatterjee; 241 Dr. Bimalendu Desarkar (North Howrah); 242. Dr. Mangalam V. Rathod (Ahmedabad); 243. Dr. B. D. Kalgutker (Bombay); 244. Dr. V A. Kamat (Bombay); 245. Dr. J. M. Mody (Bombay): 246. Dr R K. Menda (Bombay). 247 Dr. A D Daftary (Bombay); 248. Dr. Kapil Deo Singh (Motihari); 249. Dr. Thakur Bidhu Bhushan Singh (Muzaffarpur): 250 Dr Shatrugh N. Prasad (Dhanbad); 251. Dr. Desai Paramanand Manilal (Ahmedabad); 252. Dr Bimal Chakraborty (Calcutta); 253. Dr. M G Pandejee (Ahmedabad): 254. Dr. V. T. Kothari (Hubli) 255 Dr A. S. Kothari (Baroda): 256. Dr. S J. Desai (Vapi). 257 Dr. V. C. Patel (Baroda); 258. Dr. K. S. Shah (Ahmedabad); 259.. Dr. F. S. Desai (Bombay): 260. Dr. Avinash S. Godbole (Bombay); 261. Dr B. S. Chouhan (Jaipur): 262. Dr. Avtar Singh Arora (Amritsar); 263. Dr. Manoranjan Adhikesh (Budge-Budge); 264. Dr Shaikh Hatim (Indore); 265 Dr Kuldip Singh Arora (Amritsar); 266. Dr C. V. Talwarkar (Bombay); 267. Dr Rama Rao (Madras); 268 Dr K. B Kulkarni (Gwalior): 269. Dr. L. P. Kapur (Haryana); 270 Dr K. B. Gupta (Panihate); 271. Dr L. P Khare (Satna); 272. Dr. S. Gopalkrishna (Bangalore): 273. Dr. R. N. Chatterjee (Jabalpur); 274 Dr. P. C. Sangal (Hardwar); 275. Dr. A. R. Dutta (Rajnandgaon); 276. Dr Manmotho Nath Nandy (Jalpaiguri); 277. Dr. B. Janaki Rama Rao (Razole); 278. Dr. P S. Sarma (Konaseema); 279. Dr. J. R. Jaju (Ahmedabad); 280. Dr. D. D. Mitra (Bhadrakali); 281. Dr. R. T. Shah (Dhoraji); 282. Dr. Kalyana Hazari (Patna); 283. Dr. Iva Hazari (Patna); 284. Dr. Jagdish Chandra Sharma (Muzaffarnagar); 285. Dr. Hriday Ranjan Kundu (Garden Reach); 286. Dr. R. Ananthanarayan (Trivandrum); 287. Dr. V. K. Thomas (Cochin); 288. Dr. T. M. Paul (Cochin); 289. Dr. N. K. Bodiwalla (Ahmedabad); 290. Dr. R. D. Thakare (Amravati); 291. Dr. B. B. L. Dixit (Agra); 292. Dr. Renuka Dixit (Agra); 293. Dr. A. K. Chatterjee (Kolaghat); 294. Dr. S. G. Raja Ratnam (Coimbatore); 295. Dr. Ajit Kumar Roy (Calcutta); 296. Dr V. K. Toraskar (Bombay); 297. Dr. J. N. Mathur (Alwar); 298. Dr. R. N. Gupta (Lucknow); 299. Dr N. H. Sasvesh Pande (Balgaon); 300 Dr. M. M. Siddhu (Lucknow); 301. Dr. M. L. Khanpurkar (Bhusawal); 302. Dr O. M. Desai (Kalol); 303. Dr. K. M. Thakar (Mulund); 304. Dr. N. S Sastry (Vijaywada); 305. Dr. M. M. Mittal (Delhi); 306. Dr. Sarita Mittal (Delhi); 307. Dr. K. R. Bhatt (Surat): 308. Dr. A. K. Gupta (Delhi), 309 Dr. K. Satyanarayanarao (Berhampur); 310. Dr. S. N. Gupta (Delhi); 311. Dr. C. S. Sharma (Patna), 312. Dr. S P Singh (Saran); 313 Dr. S N. Verma (Patna); 314. Dr. Navamani Bose (Tuticorin); 315. Dr N. S. Chandra Bose (Tuticorin); 316. Dr. K K Singh (Patna) 317 Dr Someshwar Narayan Singh (Tekari); 318 Dr. R N S. Agarwal (Amroha); 319. Dr R. S. Diwan (Rajnandgaon); 320. Dr Prabhuddha Kumar Ghosh (Chandragaon); 321. Dr (Mrs) Sushma Grover (Delhi). 322. Dr. (Mrs.) Asha Arora (Delhi); 323. Dr S. B. Agnihotri (Kanpur); 324. Dr R J. Desai (Surat); 325. Dr. R. D Upadhya (Raizabad); 326. Dr. B R. Thukral (Varanasi); 327. Dr. R. Narayanaswamy (Bangalore): 328. Dr. B. R Shamrao (Shimago); 329. Dr. B. D. Agarwal (Jullundur); 330. Dr. Arvind M. Shah (Bombay West Suburban); 331. Dr. R K Shah (Bombay West Suburban); 332. Dr. K. S. Dikshit (BHEL Ranipur) 333 Dr Lalan Prasad (Gaya); 334. Dr. Badyanath Singh (Gaya); 335. Dr. Gouri Pada Dutta (Calcutta); 336. Dr. V. K. Khanna (Sikar); 337. Dr. R. N. Thakur (Muzaffarpur); 338. Dr. M. B. Patel (Ahmedabad); 339. Dr. V B. Shah (Ahmedabad); 340. Dr. R. P. Okhandiar (Bhagalpur); 341. Dr. (Mrs.) Lalita Rao (Bombay); 342. Dr. Manubhai C. G Patel (Surat); 343. Dr. V S. Kashikar (Nagpur); 344. Dr. Elizabeth Vizwathan (Madras); 345. Dr. C. Kasi Viswanathan (Madras), 346. Dr. J. D. Bhagat (Bombay); 347. Dr. D. N. Chatterjee (Dhanbad); 348. Dr. Chittaranjan (Bikramganj); 349. Dr. Ramani Raman (Patna); 350. Dr. Mahindra Kishore Sinha (Marhowra); 351. Dr. Chandradeo Prasad Singh (Begusarai); 352. Dr. H. S. Kothari (Delhi); 353. Dr. Paramjet Singh Khurana (Amritsar); 354. Dr. Harish Chandra Gupta (Delhi); 355. Dr. J. S. Nanra (Delhi); 356. Dr. S. K. Das (Kumardhubi); 357. Dr. Purushottam B. Parmar (Ahmedabad); 358 Dr. I. C. Siddhanta (Beldanga); 359. Dr. K. K. Nagpal (Kurukshetra); 360. Dr. M. M. Hussain (Siliguri); 361. Dr. P. M. Chaudhary (Rishra); 362. Dr. Sachin Datta (Tarakeswar); 363. Dr. Deben Ghosh (Kankurgachi); 364. Dr. V. D. Deshmukh (Dhulia); 365. Dr. Gopalji Srivastava (Delhi); 366. Dr. (Mrs.) P. M. Shrivastava (Delhi); 367. Dr. Agrawal Metichand (Garhwa): 368. Dr. Surendra Varma (Sultanpur); 369. Dr. Baidanath Shrimani (Champadani); 370. Dr. Sisir Ranjan Sengupta (Calcutta); 371. Dr. A. K. Sabhapati (Cochin); 372. Dr. R. Ramgopal Singh (Bakhatiarpur); 373 Dr. S. A. Husen (Jehanabad); 374. Dr Kedarprasad Singh (Patna); 375. Dr. S. K. Mitra (Jagannathnagar); 376. Dr. Chinubhai M. Shah (Ahmedabad): 377. Dr. Vinod Agarwal (Jodhpur); 378. Dr. Kapildev Narayan (Siwan); 379. Dr. Naval B. Shah (Malegaon); 380. Dr. Savailal M. Patel (Ahmedabad); 381. Dr. Hornam Singh (Moradabad); 382. Dr. P. M. Hoshing (Amednagar); 383. Dr. K. P. Malhotra (Kanpur). 384. Dr. Ranjan K. Nanavaty (Ahmedabad); 385. Dr. J. S. Agarwal (Moradabad); 386. Dr. B. D. De (Calcutta); 387. Dr. Tarapada Ghosh (Amtala); 388. Dr. Promad Sinha (Darbhanga); 389. Dr. B. Padmanabhan (Nilgiris); 390. Dr. R. K. Jalota (Kanpur); 391. Dr. Bal Krishna Agarwal (Fatehpur); 392. Dr. P. S. Mishra (Almora); 393. Dr. K. P. Bhattacharya (Sitamarhi); 394. Dr. S. N. Chowdhary (Dhubri); 395. Dr. M. L. Bansod (Moga); 396. Dr. Bhirendra Kumar Sharma (Daltonganj).

PROCEEDINGS:

The President called the meeting to order.

The following condolence resolution was moved on the demise of Dr. A. D. Mukherjee (Calcutta) a founder-member of the Indian Medical Association and a former Editor of the Journal of the IMA.

"This 37th Annual Meeting of the Central Council of the Indian Medical Association places on record its deep sense of grief at the sad demise of Dr. A D. Mukherjee (Calcutta) a founder member of the Indian Medical Association and former Editor of the Journal of the Indian Medical Association. The meeting conveys its heartfelt condolence to the bereaved family and prays for the departed soul".

The members stood in silence for 2 minutes in respect of the departed soul.

Item No 1. . a) *To elect, if necessary (in the absence of the President and Vice-Presidents),*
b) *To confirm minutes of proceedings of 36th ordinary meeting of the Central Council held at Bangalore on December 29, 1976*

The minutes were confirmed on a proposal by Dr. P. S. Sood (Farrukhabad) and seconded by Dr. Kalyan Hazari (Patna).

Item No. 2 (i): *To adopt Annual Report for 1976-77:*

1. *Headquarters Office:*

It was decided to change the second line appearing in the para headed "Introduction" as follows. "The present Government" instead of "A Change of Government".

During discussion, the following further points were made:

1. *Organisation.*

Central Council noted that certain States/Union Territories are enjoying double status as State/Territorial branches as well as local branch. It desired that Rule be restored and directed the Headquarters Office to place all the facts and data before the next meeting of the Working Committee in order to enable it to do the needful.

2. *Membership:*

Much concern was expressed at the decline in the membership strength of the Association during the year under review. The decline was attributed to various causes some of which were specified as under:

(a) Lack of communication between the Branches and the non-members. There is not enough publicity given to the activities of the Association.

(b) Increase in numbers is not reflected due to large number of drop-outs. It was desired that ways and means be found to retain those members.

(c) Apathy of doctors in service and specialists towards the IMA. It was suggested the following measures be adopted to give filip to the membership drive:

(i) Concession for young doctors. (ii) Senior doctors should adopt someway for young doctors and pay subscription on their behalf during their early years of professional career. (iii) Other means may be found to find finances for young doctors, to start practice. (iv) Junior doctors be encouraged to take active interest in the activities of the Association and also be involved in the task of running the Association. (v) Journal be further improved so that it becomes an important attraction for the members. (vi) IMA College of General Practitioners should further improve its activities. (vii) It was pointed out that some members appear in several committees; it should be avoided.

At this stage the Hony. General Secretary informed the house that in spite of reduction in total membership, many State Branches were active and had in fact increased the number of their members. The Assam Branch because of its very satisfactory membership drive had qualified to win Dr. A. K. Bose Trophy for Best Membership Drive. Tripura State Branch was specially mentioned by the General Secretary as the second best State Branch according to the Membership Drive. A special certificate of merit will be awarded to Tripura State Branch.

The Farrukhabad-Fategarh Branch (UP) had won the Best Branch Trophy for over-all performance.

4. *Finance:*

Members showed concern about the large amount of money due as HFC arrears. An appeal was made to the Branches to clear the same at their earliest.

On an enquiry about the accommodation loan to the JIMA the House was informed that a sum of rupees one lakh was made available to the Journal Office to liquidate its over-draft loan from the Syndicate Bank and the Journal was regularly making good the loss accruing to the college because of this transaction.

The Council was informed that further budget allocation of fifteen thousand rupees was made for the expenses of the Action Committee in connection with the observance of the National Consolidation and Rededication Day.

5. *IMA Building:*

The Council was informed about the progress made for the joint venture of a Building at Calcutta by the Bengal State Branch and the IMA Headquarters.

The Central Council desired that further action be taken in consultation with the legal adviser and authorised the Working Committee to proceed in the matter to finalise the project. An appeal be made for collection of funds.

6. *E.S.I.:*

i) Authorities be urged to review the existing amount of Capitation Fee which is very inadequate under the prevailing conditions.

ii) Government should be requested to modify the ESI doctors pay structure according to Central scales in view of the fact that ESI doctors in Delhi are receiving this scale and there should be uniformity in this respect all over the country.

iii) In the first instance attempt should be made to have negotiations to meet the demands failing which direct action will be considered.

iv) It was suggested that the ESI Standing Committee should have doctors working in the ESI both on panel as well as service system.

v) As far as possible the meetings of Standing Committee be held in a place where the ESI Scheme is in operation.

vi) Problems of ESI and ways and means adopted by IMA to look after them be published in IMA News and JIMA.

7. *L.I.C.:*

i) White Paper on LIC should be revised with the view to include some of the suggestions made by the branches and from members who examine cases for Life Insurance Corporation.

ii) Chairman of the LIC Corporation be approached not to debar doctors above 65 years of age from examining cases while they continue to be in active practice.

8. *Drugs and Pharmaceuticals :*

i) IMA should make a study of the Cost Accounting of the Drugs and Pharmaceuticals.

ii) IMA should urge upon the Government to implement the recommendations of the Hathi Committee.

iii) IMA should formulate an opinion on role of multinationals in Pharmaceutical Industry as early as possible.

iv) The Central Council appreciated the approach of Union Minister for Petroleum, Chemicals & Fertilizers, Shri H. N. Bahuguna in taking IMA into confidence with regard to the matters of drugs and pharmaceuticals, their manufacture, availability and price and for providing opportunity to teams of IMA to visit it and see for itself the working of public sector undertakings (IDPL, HAL and SIP) and hoped that this process will continue to further improve the availability of essential and life-saving drugs for the people.

vii The Central Council noting the circular from the Drug Controller regarding the short supply of streptomycin all over the world urged upon the Government to speedily devise ways and means to meet this shortage keeping in view the high price of substitute drugs in the treatment of Tuberculosis and realising that the raw materials for the manufacture of streptomycin is available within the country.

viii The Central Council expressed its concern about the flooding of market with spurious drugs and urged upon the Government to have enough drug inspectors to check them.

9. *Quackery and Action Committee :*

i) The Central Council expressed its grave concern over the manner in which the Government is trying to dilute the delivery of health care to the teeming millions by entrusting the job to village workers with no background and further expecting them to dabble in Ayurvedic, Unani, Homoeopathic, Sidha, as well as modern system of medicine. The Council felt that this retrograde step will spell disaster and do incalculable harm to the health of villagers In not being able to provide services at par to the one being available in semi-urban and urban areas the State is discriminating in different sections of the society. In a welfare state, the Government owes this responsibility. While placing its services at the disposal of the Government the Indian Medical Association desires that proper facilities be developed in a phased manner and necessary funds provided for the health of the nation.

ii) The Central Council while appreciating the effort of the Action Committee desires that the committee with Dr. P. K. Dutta as Chairman and Dr. Sushil Banerjee as convenor as proposed by Dr. Dilip Roy and seconded by Dr. N. Satyanarayana (Vijayawada) continue its efforts and observe an all India Doctors Day in consultation with the President and demand from the Government that it should declare a national health policy on Drugs, Medical Education and Health Care for proper planning. In this connection the following resolution was adopted.

RESOLUTION

This meeting of the Central Council of the Indian Medical Association strongly resents the move of the Union Health Ministry to introduce a cadre of semi-literate ill-trained health workers (*Swasth Rakshaks*) for the health care needs of the rural masses by providing them a kit for treatment of disease; such a step will in a way be an encouragement to quackery and will be harmful and positively against the interest of Public Health.

In this connection the IMA draws the attention of the authorities to the remarks of Rashtrapati at the time of the inauguration of the 24th Delhi State Medical Conference on December 1, 1977, wherein he said that unemployed doctors should be part of any new rural health scheme. There was no point in creating a whole new cadre of health workers when 90 per cent of unemployed doctors are readily available to get jobs in villages if given an opportunity.

The meeting further urges that while formulating any new health policy, the planners will give due consideration to these views of the Head of the State and consult the IMA.

On a motion by Dr. Dilip Roy (Calcutta), seconded by Dr. K. M. Thakkar (Bombay) the Council adopted the annual report of the Headquarters for the year 1976-77.

Item No. 2 (ii) : *i) Journal Office, ii) "Your Health", "Apka Swasthya"*

i) *Journal Office :*

The Annual Report of the Journal Office as circulated was adopted as proposed by Dr Somdeb Bhattacharya (Calcutta) and seconded by Dr. Sadhu Chand Vinyek (Ferozepore).

Item No. 2 (iii) :

ii) *"Your Health" :*

The Annual Report of the "Your Health" as circulated was duly adopted as proposed by Dr Somdeb Bhattacharya (Calcutta) and seconded by Dr Sadhu Chand Vinyek (Ferozepore).

Item No. 2 (iv) :

iii) *"Apka Swasthya" :*

The Annual Report of the "Apka Swasthya" as circulated was duly adopted as proposed by Dr. Somdeb Bhattacharya (Calcutta) and seconded by Dr. Sadhu Chand Vinyek (Ferozepore).

Item No. 3 : *To adopt audited accounts for 1976-77 : i) Headquarters Office ; ii) Journal Office ; iii) "Your Health" ; iv) "Apka Swasthya".*

(i) *Headquarters Office :*

The audited accounts of the Headquarters Office for the year 1976-77 were adopted on a proposal by Dr. S. N. Gupta (Delhi) and seconded by Dr. Sadhu Chand Vinyek (Ferozepore).

A proposal to have an internal Auditor to go into the Accounts, was made by Dr. Somdeb Bhattacharya and seconded by Dr. Anand Mohan Dutt. After a brief discussion, it was withdrawn.

(ii) *Journal Office :*

The audited accounts of the Journal Office for the year 1976-77 were adopted as proposed by Dr. K. V. Swami (Madras) and seconded by Dr. S. N. P. Agarwal (Samastipur).

(iii) *"Your Health" :*

The audited accounts of the "Your Health" for the year 1976-77 were adopted as proposed by Dr. P. S. Sood (Farrukhabad) and seconded by Dr. Kuldip Singh Arora (Amritsar).

(iv) *"Apka Swasthya" :*

The audited accounts of the "Apka Swasthya" for the year 1976-77 were adopted on a proposal by Dr. Bijon Das (Calcutta) and seconded by Dr. M. N. Nandy (Calcutta).

Item No. 4 : *To consider and approve budget estimates for 1977-78 : i) Headquarters Office ; ii) Journal Office ; iii) "Your Health" ; iv) "Apka Swasthya".*

(i) *Headquarters Office :*

The budget estimates for the year 1977-78 as proposed by the Finance Standing Committee and circulated were considered and duly approved on a proposal made by Dr. Mrinal Nandi (Calcutta) and seconded by Dr. M. M. S. Siddhu (Lucknow) after noting that the income would be worked out at the basis of the existing rate of H.F.C. and the expenditure adjusted accordingly.

(ii) *Journal Office :*

The budget estimates for the year 1977-78 as proposed by the Finance Standing Committee and circulated were duly approved as proposed by Dr. Kalyan Hazari (Patna) and seconded by Dr. K. P. Mehrotra (Kanpur) after working out at the basis of existing rate of Journal quota of the HFC and the expenditure adjusted accordingly.

(iii) *"Your Health" :*

The budget estimates of "Your Health" for the year 1977-78 as recommended by the Finance Standing Committee were duly approved as proposed by Dr. I. G. Bhatt (Ahmedabad) and seconded by Dr. Navin Chandra (Kanpur)

(iv) *"Apka Swasthya" :*

The budget estimates of "Apka Swasthya" for the year 1977-78 as recommended by the Finance Standing Committee were duly approved as proposed by Dr. L. B. Malhotra (Delhi) and seconded by Dr. C. L. Jagga (Muktsar).

Item No. 5 & 6 : *To elect Office-bearers for 1977-78 and to elect five members of Committee for each of the three Journals—(i) Journal of the IMA ; (ii) "Your Health" ; and (iii) "Apka Swasthya".*

The following were declared elected as President, Sr. Vice-President and Vice-Presidents for the year 1977-78 :

Dr. J. V. R. Sarma (Hyderabad)—*President* ; Dr. Navin Chandra (Kanpur)—*Sr. Vice-President*; Dr. Naval Kishore Sharma (Sriganganagar)—*Vice-President* ; Dr. C. L. Jagga (Muktsar)—*Vice-President.*

Hony. General Secretary :

The following nominations were made :

Dr. M. G. Garg (Delhi)—Proposed by Dr. D. S. Mehra (Delhi); Seconded by Dr. J. J. Sood (Delhi).

Dr. D. S. Mehra (Delhi)—Proposed by Dr. T. M. Paul (Cochin); Seconded by Dr. R. Anantanarayana (Trivandrum).

Dr. D. S. Mehra withdrew his name and thanked the proposer and seconder for proposing his name.

Dr. M. G. Garg (Delhi) was declared elected.

Two Hony. Joint Secretaries resident at Headquarters :

i) Dr. L. D. Malhotra (Delhi), Dr. J. J. Sood (Delhi) —Proposed by Dr. M. G. Garg (Delhi); Seconded by Dr. O. P. Kapur (Delhi).

There being no other nomination, Dr. L. D. Malhotra and Dr. J. J. Sood were declared elected.

Third Hony. Joint Secretary :

The following nomination was made :

Dr. Sushil Banerjee (Calcutta)—Proposed by Dr. M. G. Garg (Delhi); Seconded by Dr. O. P. Kapur (Delhi).

There being no other nomination, Dr. Sushil Banerjee was declared elected.

Two Hony. Assistant Secretaries at Headquarters :

The following nominations were made :

i) Dr. S. N. Gupta (Delhi); ii) Dr. A. R. Sethi (Delhi).—Proposed by Dr. M. G. Garg (Delhi); Seconded by Dr. O. P Kapur (Delhi).

There being no other nomination, Dr. S. N. Gupta (Delhi) and Dr. A. R. Sethi (Delhi) were declared elected.

One Hony. Assistant Secretary at the place of the President :

The following nomination was made :

i) Dr. N. L. Sastry (Vijaywada)—Proposed by Dr. M. G. Garg ; Seconded by Dr. J. J. Sood.

There being no other nomination Dr. N. L. Sastry was declared elected.

One Hony. Assistant Secretary at the place of the Conference :

The Central Council decided that the Hony. Assistant Secretary at the venue of the Conference be nominated by the host branch. The host branch nominated Dr. T. M. Paul to be Hony. Assistant Secretary at Cochin (venue of next Conference—1978).

One Hony. Treasurer resident at Headquarters :

The following nomination was made :

i) Dr. Pran Nath Anand (Delhi)—Proposed by Dr. M. G. Garg ; Seconded by Dr. Sushil Banerjee.

There being no other nomination, Dr. Pran Nath Anand was declared elected.

Hony. Editor, Journal of the IMA :

The following nomination was made :

Dr. Bhaskar Roy Choudhury (Calcutta)—Proposed by Dr. D. S. Mehra (Delhi); Seconded by Dr. M. G. Garg (Delhi).

There being no other nomination, Dr. Bhaskar Roy Choudhury was declared elected.

Two Hony. Associate Editors, Journal of the IMA :

The following nominations were made :

Dr Pradip Kr. Majumdar (Calcutta); Dr. Gouri Pada Dutta (Calcutta)—Proposed by Dr. Bhaskar Roy Choudhury (Calcutta); Seconded by Dr. Bijon Das (Calcutta).

There being no other nomination, Dr. Pradip Kr. Majumdar (Calcutta) and Dr. Gouri Pada Dutta (Calcutta) were declared elected.

Hony. Secretary, Journal of the IMA :

The following nomination was made :

Dr. Satyendu Kundu (Calcutta)—Proposed by Dr. Bhaskar Roy Choudhury (Calcutta); Seconded by Dr. M. G. Garg (Delhi).

There being no other nomination, Dr. Satyendu Kundu was declared elected.

Five members of Committee of Journal of the IMA :

The following nominations were made by Dr. Bhaskar Roy Choudhury and seconded by Dr. Satyendu Kundu (Calcutta).

i) Dr. Purnendu Kr. Chatterjee (Calcutta). ii) Dr. Satya Ch. Mitra (Calcutta). iii) Dr. Dilip Kr. Roy (Calcutta). iv) Dr. Manish Prodhan (Calcutta). v) Dr. Amal Chakrabarty (Calcutta).

There being no other nominations, Dr. Purnendu Kr. Chatterjee, Dr. Satya Ch. Mitra, Dr. Dilip Roy, Dr. Manish Prodhan and Dr. Amal Chakrabarty were declared elected.

Hony. Editor, "Your Health" :

The following nomination was made :

Dr. Dinabandhu Banerjee (Calcutta)—Proposed by Dr. Satyendu Kundu (Howrah); Seconded by Dr. Sushil Banerjee (Calcutta).

There being no othert nomination, Dr. Dinabandhu Banerjee was declared elected.

Two Hony. Associate Editors "Your Health":

The following nominations were made:

Dr. Amiya Kr. Chatterjee (Titagarh); Dr. Bimal Kr. Chakravarty (Calcutta)—Proposed by Dr. Bhaskar Roy Choudhury (Calcutta), Seconded by Dr. Satyendu Kundu (Calcutta).

There being no other nominations, Dr. Amiya Kr. Chatterjeee and Dr. Bimal Kr. Chakravarty (Calcutta) were declared elected.

Hony. Secretary—"Your Health":

The following nomination was made:

Dr. Satyendu Kundu (Calcutta)—Proposed by Dr. Bhaskar Roy Choudhury (Calcutta); Seconded by Dr. M. G. Garg (Delhi).

There being no other nomination, Dr. Satyendu Kundu (Howrah) was declared elected.

Five Members of the "Your Health Committee:

The following nominations were made by Dr. Bhaskar Roy Chowdhury (Calcutta) and seconded by Dr. Satyendu Kundu (Howrah):

i) Dr. Sushil Bhattacharya (Rajpur-Baruipur), ii) Dr. Bonbehari Kar (North Howrah), iii) Dr. P. K. Ghosh (Chandernagore), iv) Dr. Nripendra Nath Bhattacharya (Calcutta), v) Dr. Manindra Chandra Banerjee (Kolaghat).

There being no other nomination, Dr. Sushil Bhattacharya, Dr. Bonbehari Kar, Dr. P. K. Ghosh, Dr. Nripendra Nath Bhattacharya and Dr. Manindra Chandra Banerjee were declared elected.

Hony. Editor - "Apka Swasthya":

The following nomination was made.

Dr. B. S. Mehta (Varanasi)—Proposed by Dr. D. S. Mehra (Delhi); Seconded by Dr. M. G. Garg (Delhi).

There being no other nomination, Dr B. S. Mehta was declared elected.

Two Hony. Associate Editors "Apka Swasthya".

The following nominations were made:

i) Dr. D. Majumdar (Varanasi), ii) Dr. R. K. Dutta (Varanasi)—Proposed by Dr. B. S. Mehta (Varanasi); Seconded by Dr. D. S. Mehra (Delhi).

There being no other nomination, Dr. D. Majumdar and Dr. R. K. Dutta were declared elected.

Hony. Secretary, "Apka Swasthya":

The following nomination was made:

Dr. B. R. Thukral (Varanasi).

There being no other nomination, Dr. B. R. Thukral was declared elected.

Five Members of "Apka Swasthya" Committee:

The following nominations were made:

Dr. K. P. Tiwari (Varanasi), Dr. L. R. Mehta (Varanasi), Dr. K. P. Agarwal (Varanasi), Dr. M. R. Jhauwar (Varanasi), Dr. G. D. Aggrawal (Varanasi)—Proposed by Dr. B. S. Mehta (Varanasi); Seconded by Dr. M. G Garg (Delhi).

There being no other nominations Dr. K. P. Tiwari, Dr. L. R. Mehta, Dr. K. P. Aggarwal, Dr. M. R. Jhauwar and Dr. G. D. Aggarwal were declared elected.

Item No. 7: *To elect Office-bearers and 5 members from amongst Central Council members to the Governing Council of the IMA College of General Practitioners as per Constitution of the College.*

Hony. Secretary of the College:

The following nomination was made:

Dr. P. K. Banerjee (Delhi)—Proposed by Dr. M. G. Garg (Delhi); Seconded by Dr. Pran Nath Anand (Delhi).

There being no other nomination, Dr. P. K. Banerjee was declared elected.

Two Hony. Joint Secretaries of the College:

The following nominations were made:

Dr. O. P. Kapur (Delhi), Dr. N. K. Khosla (Delhi)—Proposed by Dr. P. K. Banerjee (Delhi); Seconded by Dr. D. S. Mehra (Delhi).

There being no other nomination, Dr. O. P. Kapur and Dr. N. K. Khosla were declared elected.

Five representatives of the Central Council on the Governing Council of the College:

The following nominations were made:

1) Dr. A. Bapiraju (Visakhapatnam), 2) Dr. Sivanappa (Bangalore), 3) Dr. Sadhu Chand Vinyek (Ferozepore), 4) Dr. A. K. Tandon (Lucknow), 5) Dr. V. K. Khanna (Sikar), 6) Dr. P. S. Sood (Farrukhabad)—Proposed by Dr. Bimal Kr. Chakravarty (Calcutta); Seconded by Dr. P. R. Trivedi (Ahmedabad).

Dr. A. K. Tandon withdrew his name. Dr. A. Bapiraju, Dr. Sivanappa, Dr. Sadhu Chand Vinyek, Dr. V. K. Khanna and Dr. P. S. Sood were declared elected.

Item No. 8: *To elect 10 members from amongst the members of the Central Council to serve on the "Subjects Committee" of the 53rd All India Medical Conference (as per Byelaw 57-D):*

1) Dr. M. V. Krishna Reddy, 2) Dr. Bijon Das (Calcutta), 3) Dr. A. J. Shelat (Bombay), 4) Dr. Mrinal Nandi (South Calcutta), 5) Dr. Debesh Mukherjee (Calcutta), 6) Dr. D. S. Mungaker (Bombay), 7) Dr. Avtar Singh Arora (Amritsar), 8) Dr. C. B Bhaskaran (Madras), 9) Dr. R. L. Goel (Bhopal), 10) Dr. R. K. Singh (Allahabad).

Item No. 9: *To appoint auditors: i) Headquarters Office. ii) Journal Office. iii) "Your Health". ic) "Apka Swasthya".*

(i) *Headquarters Office:*

On a proposal made by Dr. D. S. Mehra (Delhi) and seconded by Dr. M. G. Garg (Delhi) M/s. R. K. Khanna and Co., Chartered Accountants, New Delhi, were appointed Hony. Auditors of the Association (Headquarters) at New Delhi for the year 1977-78 on the same terms and conditions.

(ii) *Journal Office:*

On a proposal made by Dr. M. G. Garg (Delhi) and seconded by Dr. S. Kundu (Howrah) M/s. G. Basu and Co., Chartered Accountants, Calcutta were appointed Hony. Auditors of the Association (Journal Office) at Calcutta for the year 1977-78 on the same terms and conditions.

(iii) *"Your Health":*

On a proposal made by Dr. S. Kundu (Howrah) and seconded by Dr. M. G. Garg (Delhi) M/s. G. Basu & Co., Chartered Accountants, Calcutta, were appointed Hony. Auditors of the Association ("Your Health") at Calcutta for the year 1977-78 on the same terms and conditions.

(iv) *"Apka Swasthya":*

On a proposal made by Dr. B. S. Mehta (Varanasi) and seconded by Dr. J. J. Sood (Delhi) M/s. Chatterjee, Chartered Accountants, Varanasi were appointed Hony. Auditors of the Association ("Apka Swasthya") at Varanasi for the year 1977-78 on the same terms and conditions.

Item No. 10: *To appoint Hony. Legal Advisor : i) Headquarters Office, ii) Journal Office.*

(i) *Headquarters Office :*

On a proposal made by Dr. D. S. Mehra (Delhi) and seconded by Dr. M. G. Garg (Delhi), Shri K. L. Arora, Advocate, Supreme Court, Delhi, was appointed as the Hony. Legal Adviser of the Association (Headquarters) at Delhi.

(ii) *Journal Office :*

On a proposal made by Dr. S. Kundu (Howrah) and seconded by Dr D. S. Mehra (Delhi), Shri R. K. Deb, Solicitor, Calcutta, was appointed Hony. Legal Adviser of the Association (Journal Office) at Calcutta.

Item No. 11 : *To consider proposed amendments to Rules and Bye-laws of the IMA and Constitution of IMA College of General Practitioners.*

The amendments to Rules and Bye-laws of the IMA and IMA College of General Practitioners were postponed.

Item No. 12 : *To consider resolutions brought forward by Working Committee :*

None

Item No. 13 : *To consider resolutions brought forward by State and Territorial Branches.*

None

Item No. 14 : *To consider resolutions brought forward by Local Branches :*

(A) 1. The resolution as given notice of by Dhakuria Branch and moved by Dr. Debesh Mukherjee (Calcutta) was referred to the Subjects Committee. 2. The resolution of Dhakuria Branch (Bengal) involved change of Rule and was not allowed to be moved. 3 The suggestion was referred to the Working Committee. 4. The resolution was referred to the Working Committee 5. This involved change of rules, hence was not allowed to be moved 6. Referred to the Working Committee.

(B) 1 & 2. The resolutions proposed by Midnapore Branch (Bengal State Branch) were dropped in the absence of any mover.

(C) 1. The resolution proposed by Razole Branch (A.P.) was withdrawn by Dr. Janaki Rama Rao, President, Razole Branch in view of an identical resolution passed earlier by the Central Council under the heading "Quackery & Action Committee". 2. The resolution proposed by Razole Branch was withdrawn by the President of Razole Branch.

Item No. 15 : *To consider Resolutions brought forward by Individual Members :*

Resolutions proposed by Dr. M. D. Khanapurkar (Bhusawal)—(1) Involved change of rule and was not allowed to be moved. (2) Resolution regarding timing of programmes during the Annual Conference, given notice of by Dr. M. D. Khanapurkar was withdrawn in view of the explanation that these instructions are always given to the Organisers of the Conference. (3) Withdrawn by the mover.

Item No. 16 : *To consider invitations of local branches for holding All-India Medical Conference in 1978 as per Bye-law 17 :*

The Hony. General Secretary informed the House that there were five invitations received : 1) Kanpur. 2) Patna. 3) Muzaffarpur. 4) Cochin. 5) Meerut.

The Meerut Branch withdrew their invitation. The Hony. General Secretary informed the house that the Working Committee recommended the name of Cochin Branch. The house accepted the recommendation of the Working Committee to hold the next Conference at Cochin.

Item No. 17 : *To transact any other business brought forward with permission of the chair.*

With the permission of the Chair, the following resolution proposed by Dr. A. K. Tandon (Lucknow) and seconded by Dr. Bijon Das (Calcutta) was passed unanimously :

a) That the Current Saving Bank and Fixed Deposit Accounts of the Indian Medical Association be operated jointly by the Hony. General Secretary (Dr. M. G. Garg) or any one of the Hony. Joint Secretaries at New Delhi (Dr. L. D. Malhotra and Dr. J. J. Sood) with the Honorary Treasurer (Dr. Pran Nath Anand) or the President (Dr. J. V. R. Sarma).

b) That the Hony. General Secretary, Indian Medical Association (Dr. M. G Garg) or any one of the Joint Secretaries, Indian Medical Association, New Delhi (Dr. L. D. Malhotra and Dr. J. J. Sood) be authorised to buy, sell, endorse, transfer, negotiate and/or otherwise deal with Government securities standing in the name of the Indian Medical Association, jointly with the Hony. Treasurer, Indian Medical Association (Dr. Pran Nath Anand) or the President (Dr. J. V. R. Sarma).

c) That the imprest account of the Journal of the Indian Medical Association at Calcutta be operated jointly by two of the following officers, viz the Hony. Editor (Dr Bhaskar Roy Choudhury), the Hony. Associate Editors (Dr. Pradip Kr Mujamdar and Dr. Gouri Pada Dutta) and the Hony. Secretary of the Journal of the IMA (Dr. Satyendu Kundu).

d) That the accounts of "Your Health" of the Indian Medical Association at Calcutta be operated jointly by two of the following officers, viz the Hony. Editor (Dr. Dinabandu Banerjee) the Hony. Associate Editors (Dr Amiya Kr. Chatterjee and Dr. Bimal Kr. Chakravarty) and the Hony. Secretary of the "Your Health" (Dr. Satyendu Kundu).

e) That the accounts of "Apka Swasthya" of the Indian Medical Association, with the Punjab National Bank, Varanasi be operated jointly by the Hony. General Secretary (Dr. M. G. Garg) or one of the Hony. Joint Secretaries at New Delhi (Dr. L. D. Malhotra and Dr. J. J. Sood) with the Hony Treasurer (Dr. Pran Nath Anand) IMA or the President (Dr. J V. R. Sarma).

f) That the imprest account of "Apka Swasthya" of the Indian Medical Association, with the Punjab National Bank, Varanasi be operated jointly by two of the following officers, viz. the Hony. Editor (Dr. B. S. Mehta) and Hony. Associate Editors (Dr. D. Majumdar and Dr R. K. Dutta) and the Hony. Secretary "Apka Swasthya" (Dr. D. R. Thukral).

g) That the accounts of "Apka Swasthya" of the Indian Medical Association, with the New Bank of India, Varanasi be operated jointly by the Hony. General Secretary (Dr. M. G. Garg) or one of the Joint Secretaries at New Delhi (Dr. L. D. Malhotra and Dr. J. J. Sood) with the Hony. Treasurer of the Indian Medical Association (Dr. Pran Nath Anand) or the President (Dr. J. V. R. Sarma).

h) That the imprest account of "Apka Swasthya" of the Indian Medical Association, with the New Bank of India, Varanasi be operated jointly by two of the following officers, viz. the Hony. Editor (Dr B. S. Mehta) and Hony. Associate Editors (Dr. D. Majumdar and Dr. R. K. Dutta) and the Hony Secretary, "Apka Swasthya" (Dr. B. R. Thukral).

i) That the Saving Bank and Fixed Deposit Accounts of the IMA College of General Practitioners be operated jointly by the Hony. General Secretary (Dr. M. G. Garg) or any one of the Hony. Joint Secretaries at New Delhi (Dr. L. D. Malhotra and Dr. J. J. Sood) with the Hony. Treasurer, IMA (Dr. Pran Nath Anand) or the President (Dr. J. V. R. Sarma).

The Central Council placed on record its appreciation for exemplary manner in which the President, Dr. A. P Shukla, the Sr. Vice-President Dr. A. K. Dutta and the Vice-Presidents Dr. S. R. Girirajan and Dr. R. G. Gour conducted the affairs of the Association. Dr. P. C. Bhatla, Dr. M. G. Bhide and Dr. J. Majumdar, Past President, IMA and several members praised Dr. A. P. Shukla for the able manner in which he guided and steered the Association during his year of office.

Appreciating the services of Dr. D. S. Mehra in particular, who was relinquishing the office of the Hony. General Secretary. Dr. A. P. Shukla remarked that in Dr. Mehra, he found a thorough gentleman, and a devoted and selfless worker who served the Association so well. He wished him success and hoped his services will continue to be available to the Indian Medical Association.

Dr. A. P. Shukla while thanking for the compliments, expressed that he would continue to take active interest in the affairs of the Association.

He also thanked the members of the Council and the membership in general including the office-bearers of the Association and the members of the staff in the Headquarters Office and Journal Office and other Offices for the co-operation extended to him during the year.

Dr. D. S. Mehra, the Hony. General Secretary, thanked the President and members of the Association for having given him an opportunity to serve the Association during the last 22 years. He was grateful for the co-operation and affection he had received during his two years tenure as Honorary General Secretary and was glad that he could do something for the profession and the Association in a most humble way He thanked President Dr. Shukla for his guidance that he provided him in his day-to-day work. He made special mention of his colleagues in office particularly Dr. M. G Garg who was taking over from him the mantle of Hony. General Secretaryship and who, he was confident, will carry it on most efficiently.

He also thanked the office-staff at Headquarters Office and Journal Office for their co-operation.

In the end Dr. Mehra assured the House of his continued anxiety to serve the profession.

The Central Council thanked the Government of Maharashtra, the local authorities at Bombay, the Bombay West Suburban Branch of the IMA, the Chairman (Dr. Suresh C. Sheth) and Organising Secretary (Dr. Arvind M. Shah) and members of the Reception Committee for the facilities and courtesies extended to the Central Council for holding meetings and Conference. A special mention was made of Shri R. L. Nanavati for the courtesies extended by him.

With a vote of thanks to the Chair, the meeting came to a close.

Sd/- Dr. A. P. Shukla	Sd/- Dr. D. S. Mehra
President	*Hony. General Secretary*
Indian Medical Association	Indian Medical Association

XXV IMA Study Tour to Bangkok, Hongkong, Manila etc.

The Indian Medical Association/IMA College of General Practitioners announce the IMA Study Tour to Bangkok, Hongkong, Manila, Singapore and Kuala Lumpur. This tour will provide opportunity to the participants to attend World Medical Assembly being held on 13th November 1978 at Manila and to visit medical institutions/hospitals to meet colleagues in different spheres to share experience and exchange views on current medical topics. The Tour will be operated by: M/s. Travel Corporation (I) Pvt. Ltd., "Jeena House", 50 Hanuman Road, New Delhi, Tel. 310905, 384842, 383481.

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Membership of the Indian Medical Association and/or the IMA College of General Practitioners for six months or over. Families may accompany. Preference to Fellows and Life Members of the College.

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Rs. 9,200.00 per person.

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(i) Continental breakfast, (ii) Lunch, (iii) Dinner—vegetarian or non-vegetarian (No special menu will be served). The fare also includes the 12½ per cent Travel Tax, cost of surface transportation and US Dollars 300/- from the Foreign Travel Scheme allowance which will go to pay for the cost of accommodation, meals and sightseeing abroad and which all participants have to surrender to Travel Corporation (I) Pvt. Ltd Tour cost also includes IMA administration charges.

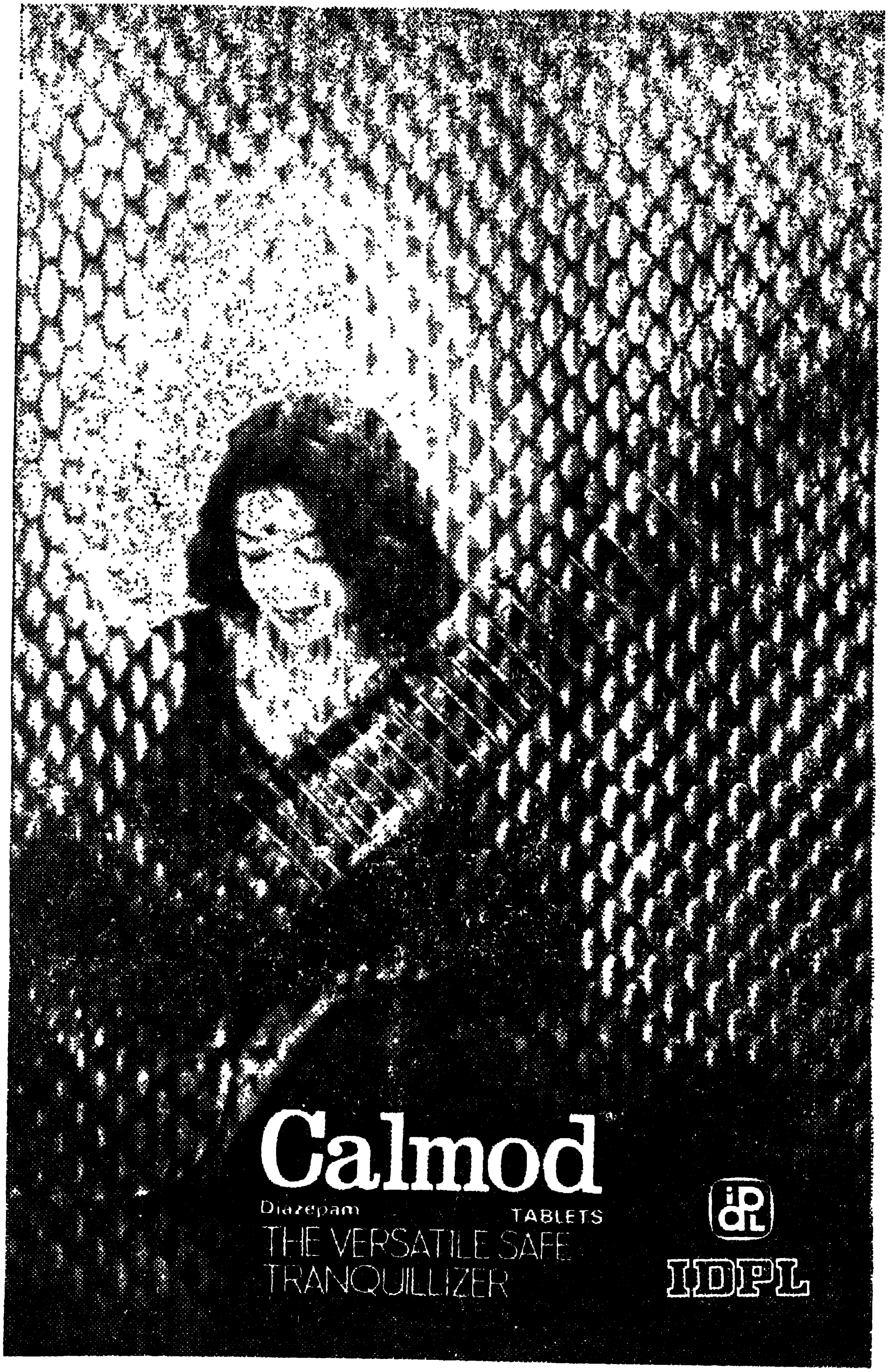
The fare does not include any change in air fare, increase in the cost of land arrangement, cost of US Dollars 200.00, passport and visa charges, items of personal nature etc.

Detailed instructions about baggage, clothing, travel documents, etc., and the registration form may be had from the Hony. General Secretary, IMA Headquarters, IMA House, I. P. Marg, New Delhi 110002. The registration form, complete in all details has to be submitted with a deposit of Rs. 2,000/- per person by Demand Draft drawn in favour of Indian Medical Association (cheques not accepted) as early as possible. The balance amount will have to be paid at least 4 weeks before departure. Booking will close on *1st October 1978.*

Branch Notes

BENGAL STATE BRANCH

Howrah Branch—At the annual general meeting held on 13-11-77 the following were elected office-bearers for 1977-78: President—Dr. Basudev Maitra; Vice-Presidents—Drs. Sunil Kumar Mittra, Girindra Prosad Ghosh and Aditya Prosad Chatterjee; Hony. Secretary—Dr. Joykrishana Mondal. Jt. Secretaries—Drs. Sudhir Kumar Banerjee, Prasanta Kumar Mukherjee and Lakshmi Naran Mullick; Members of Executive Committee—Drs. Anil Kundu, Bhupendra Nath Takhur, P. K. Roy, Ramanath Bhattacherjee, Ashok Kumar Mukherjee, Dayamay Manna, Nakuleswar Halder, Dwijendra Lal Ghosh, Bisweswar Ghosh, Alok Kumar Mondal, Salil Kumar Mondal, Debabrata Paul and Paritosh Banerjee; Members of State Council—Drs Damodar Dutta, Dulal Chand Dee, Satyendu Kundu, Anil Kundu, Shyama Prosad Dutta, Lalmohan Ghosh and Jaykrishana Mondal; Members of Central Council—Dr. Dandapani Banerjee, Sudhir Dee and Nepal Roychowdhury.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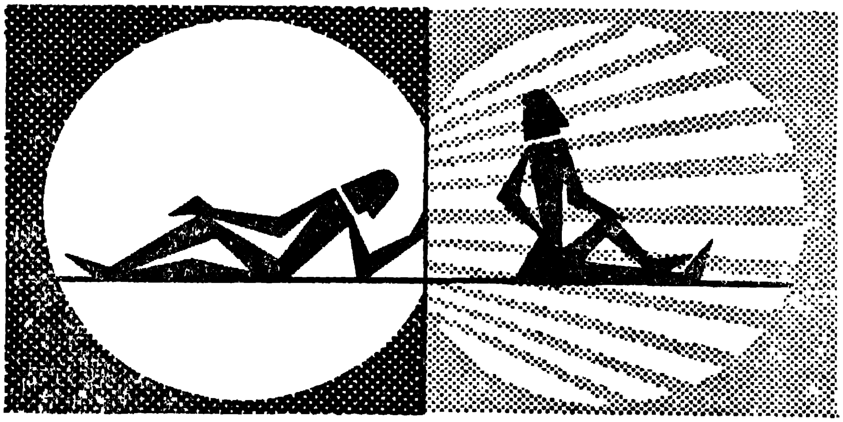

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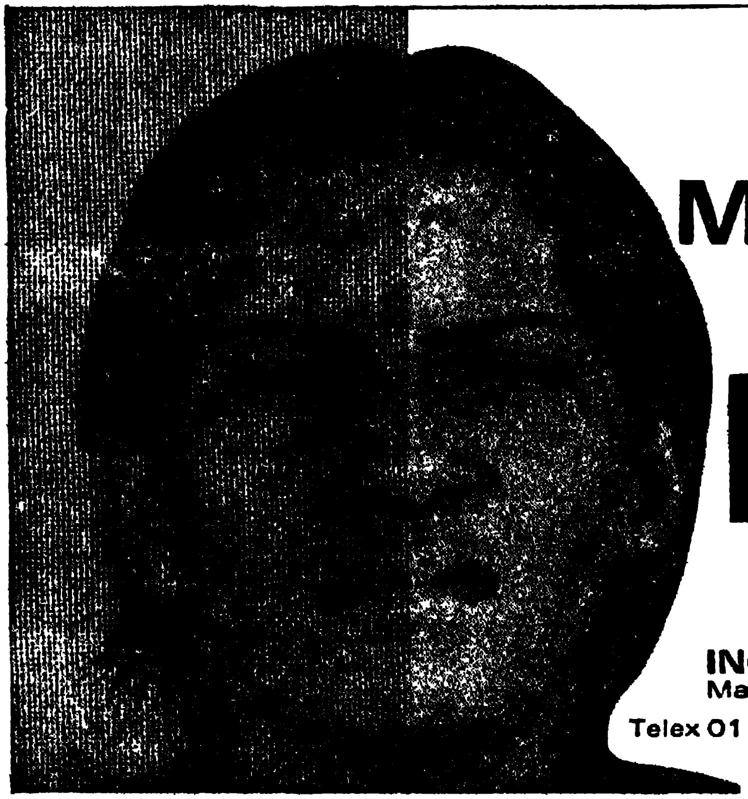

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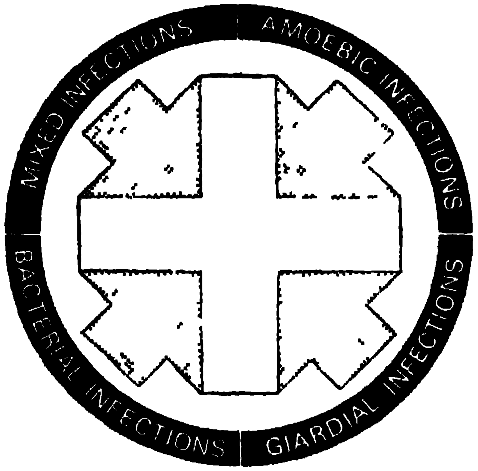

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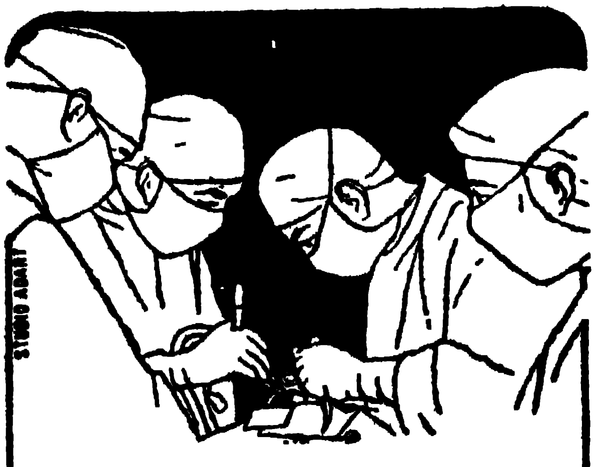

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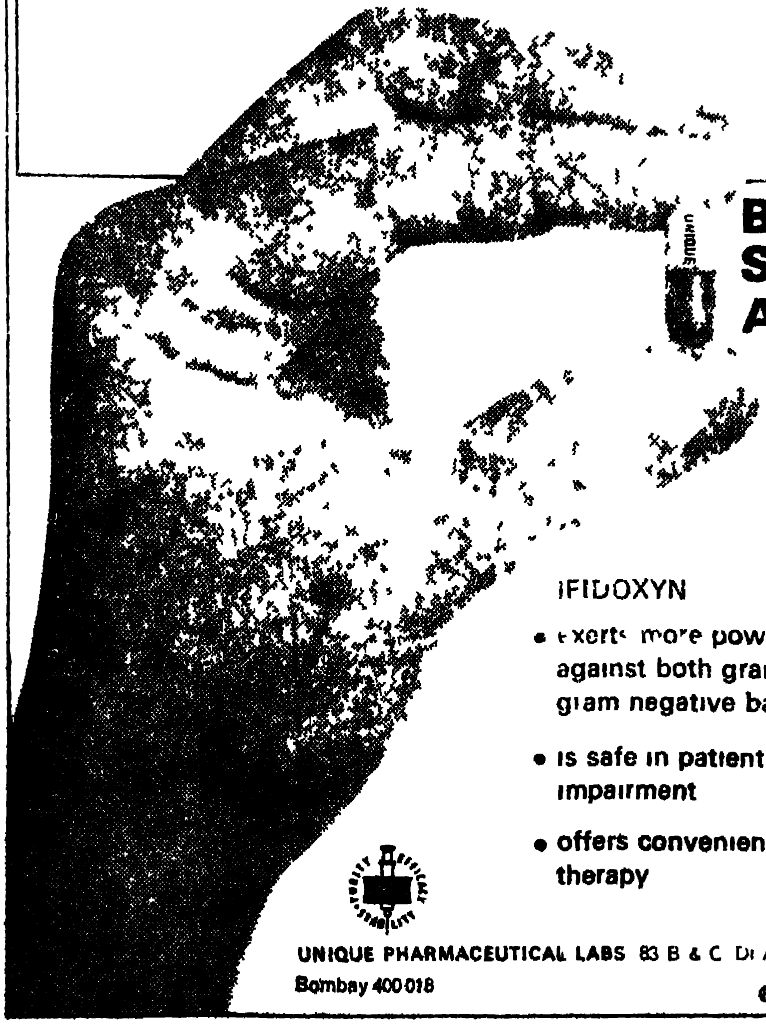

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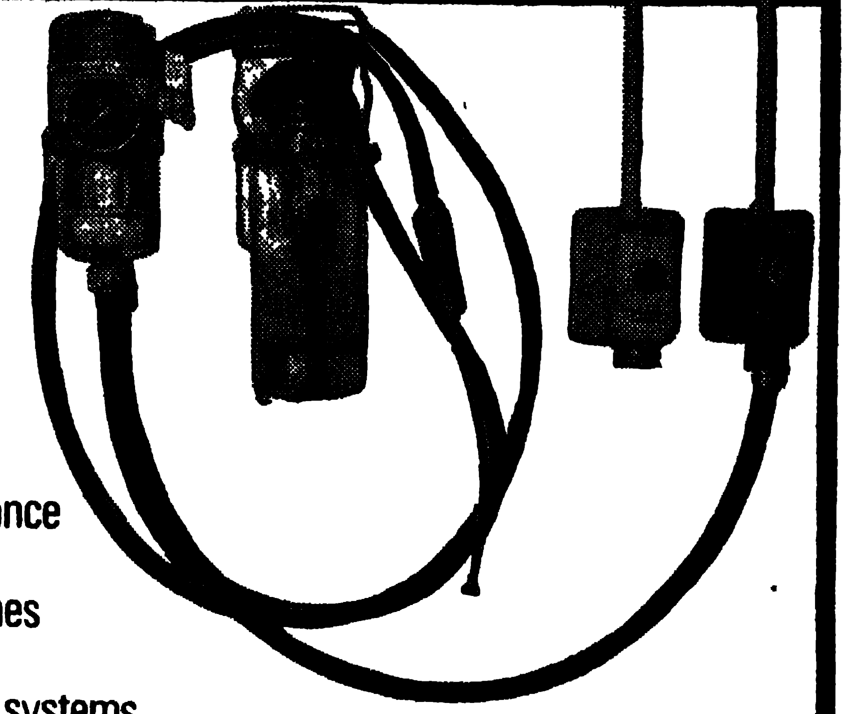

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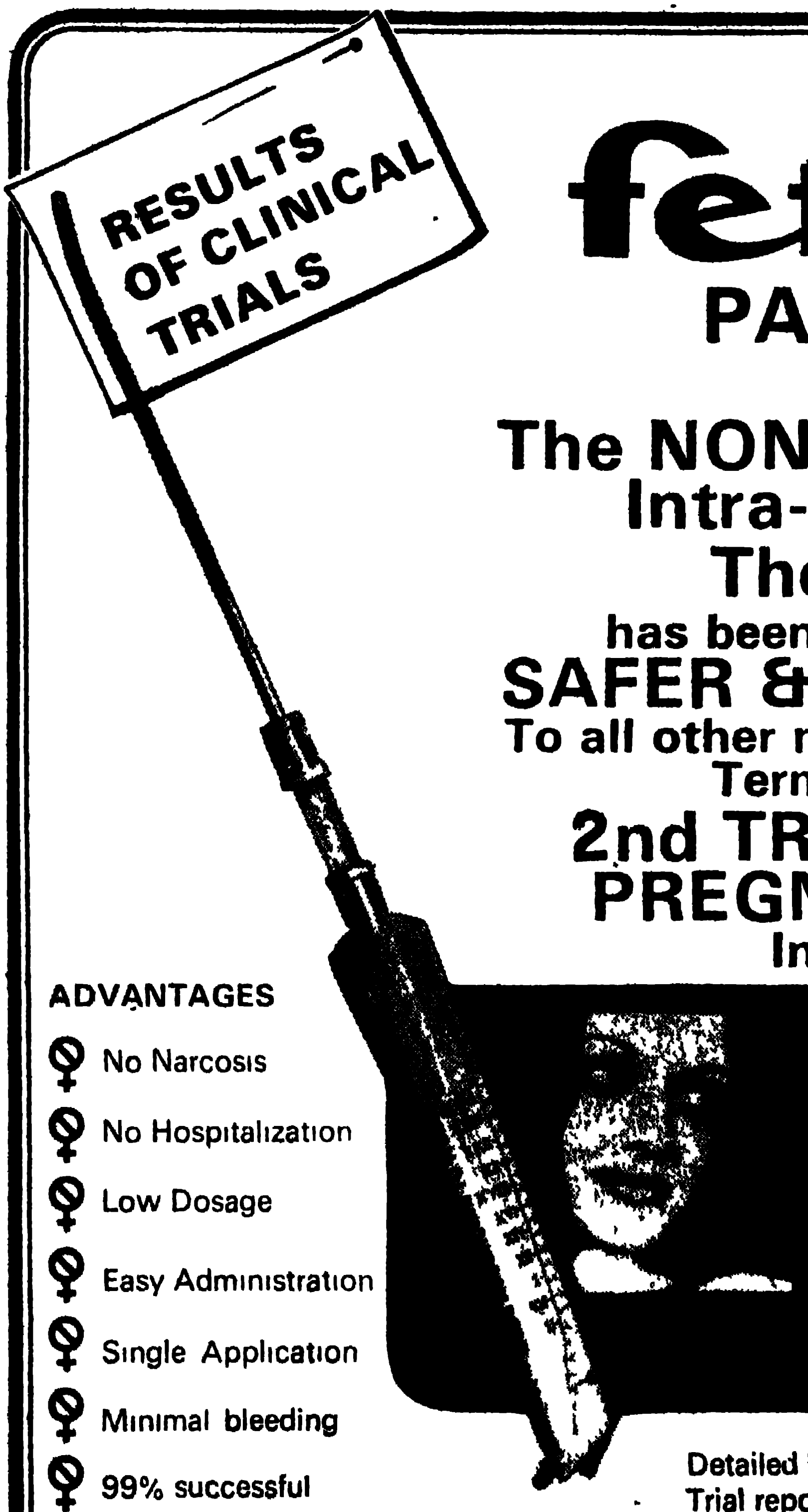

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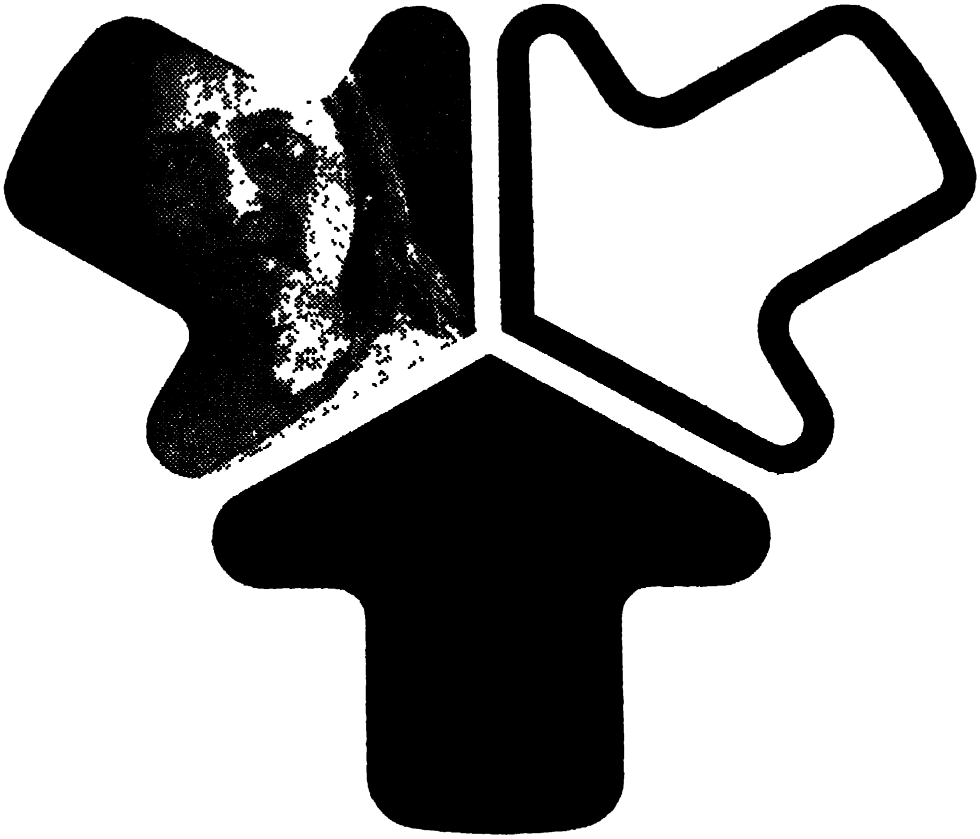

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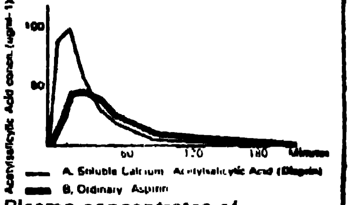

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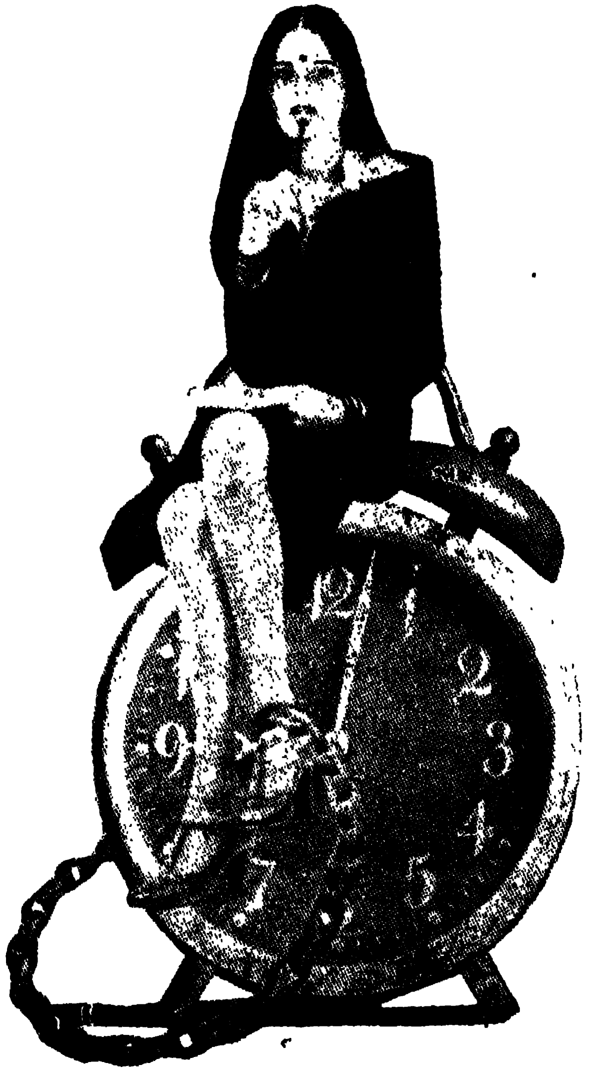

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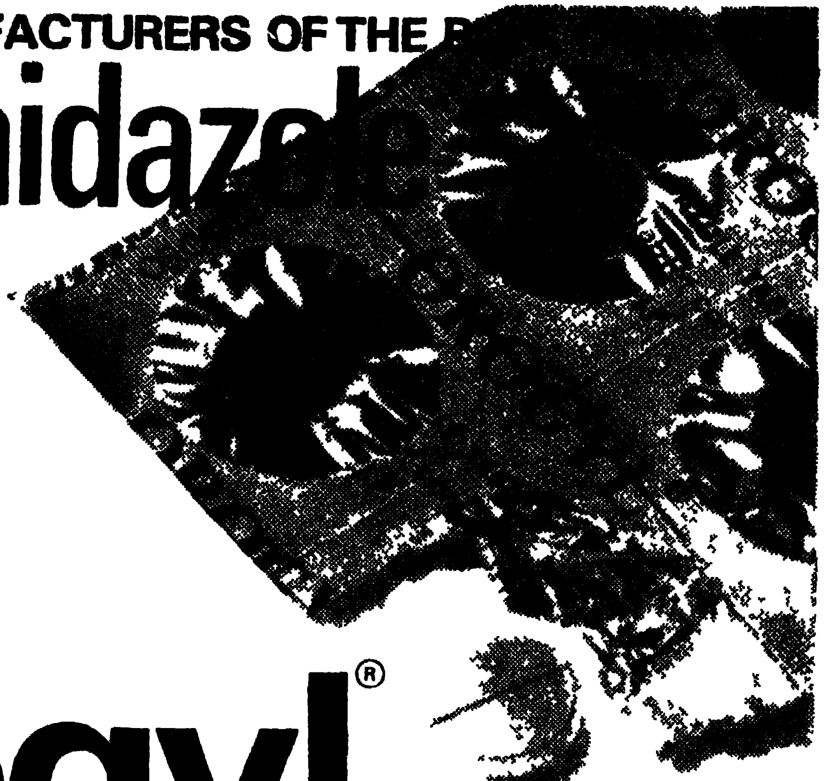

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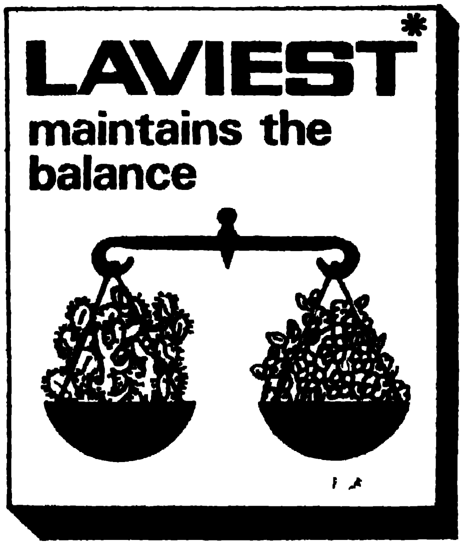

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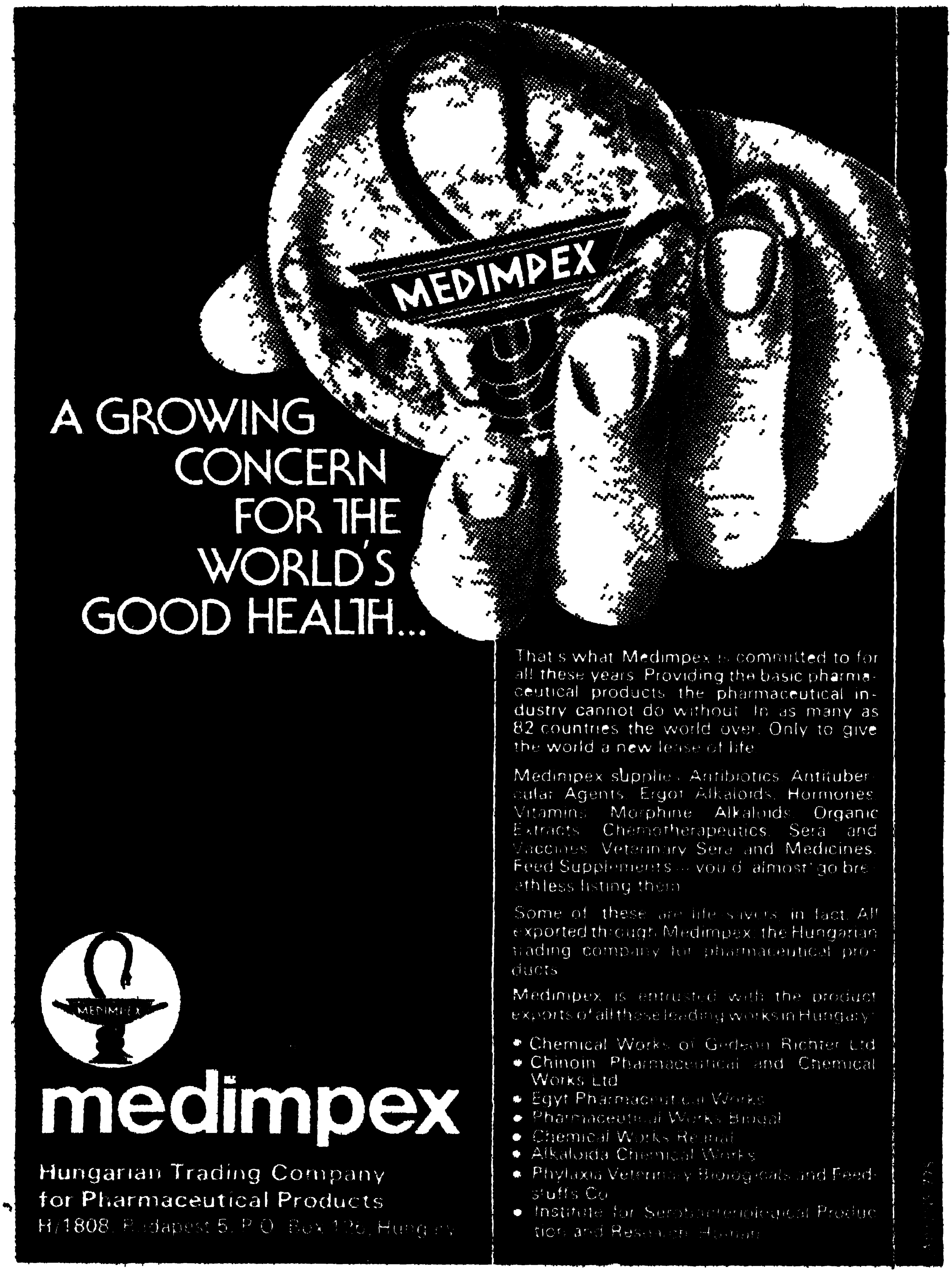
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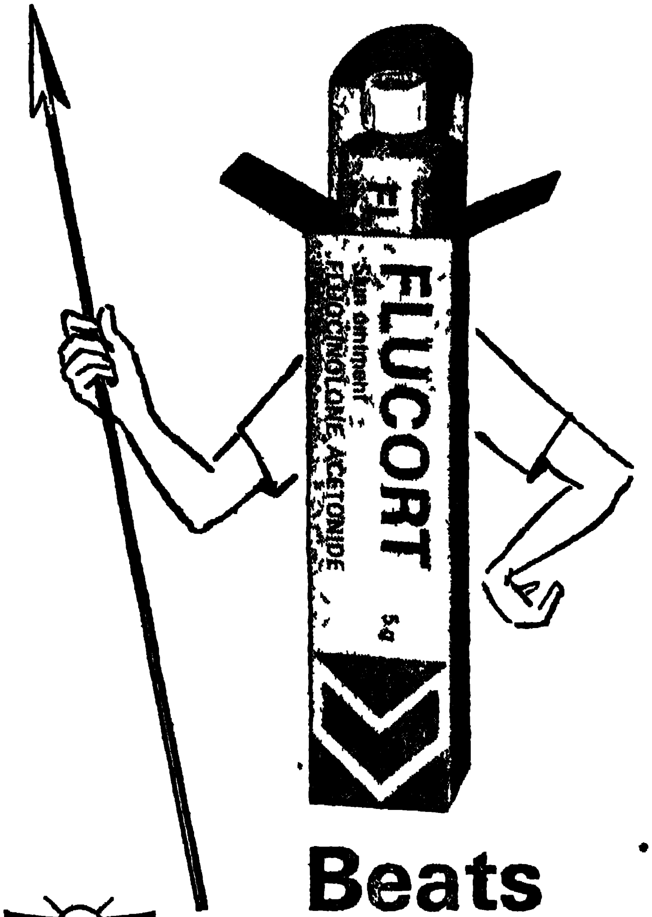

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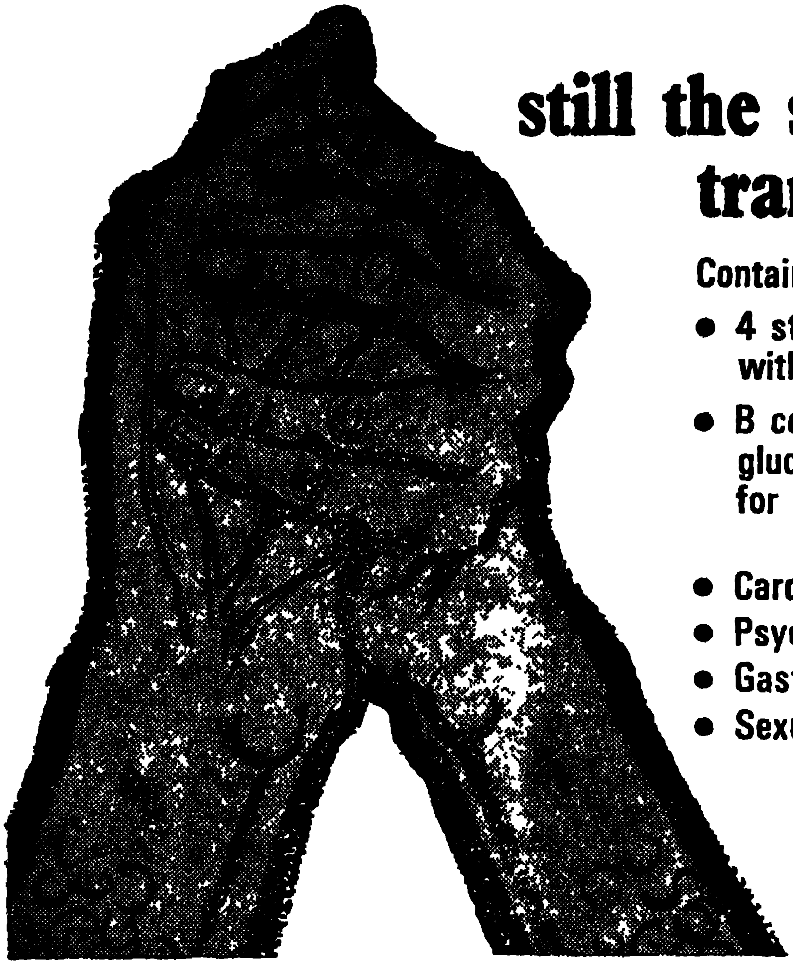

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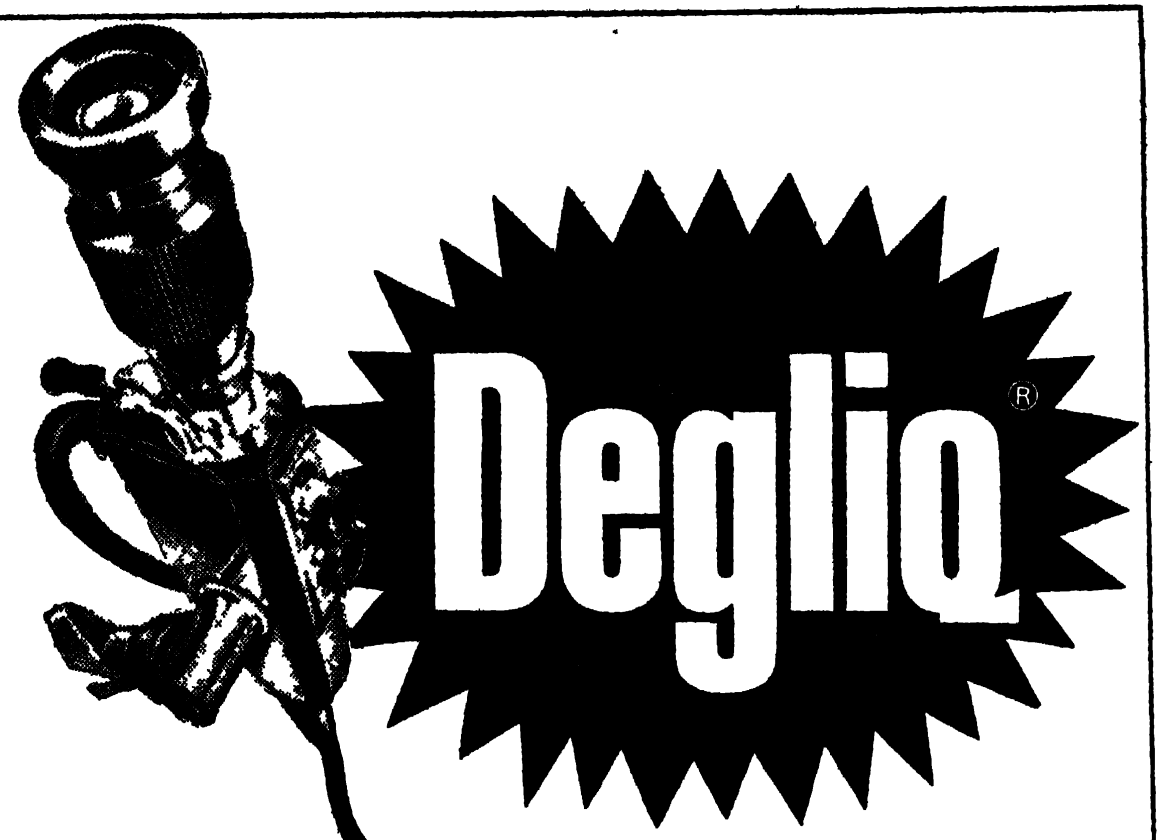

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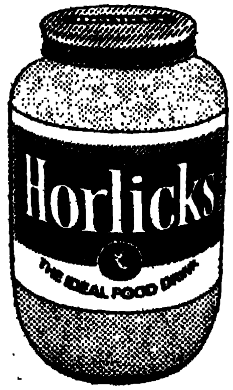

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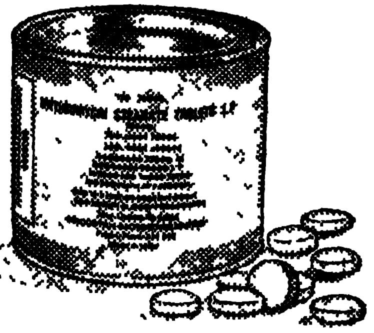

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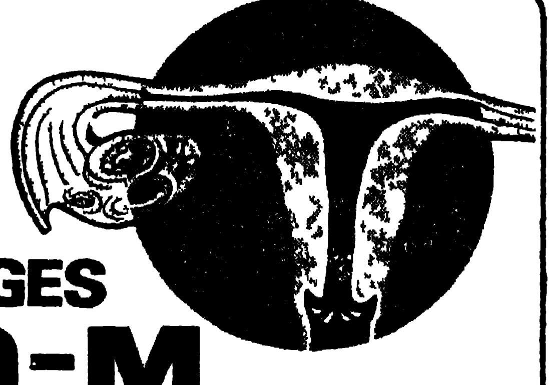

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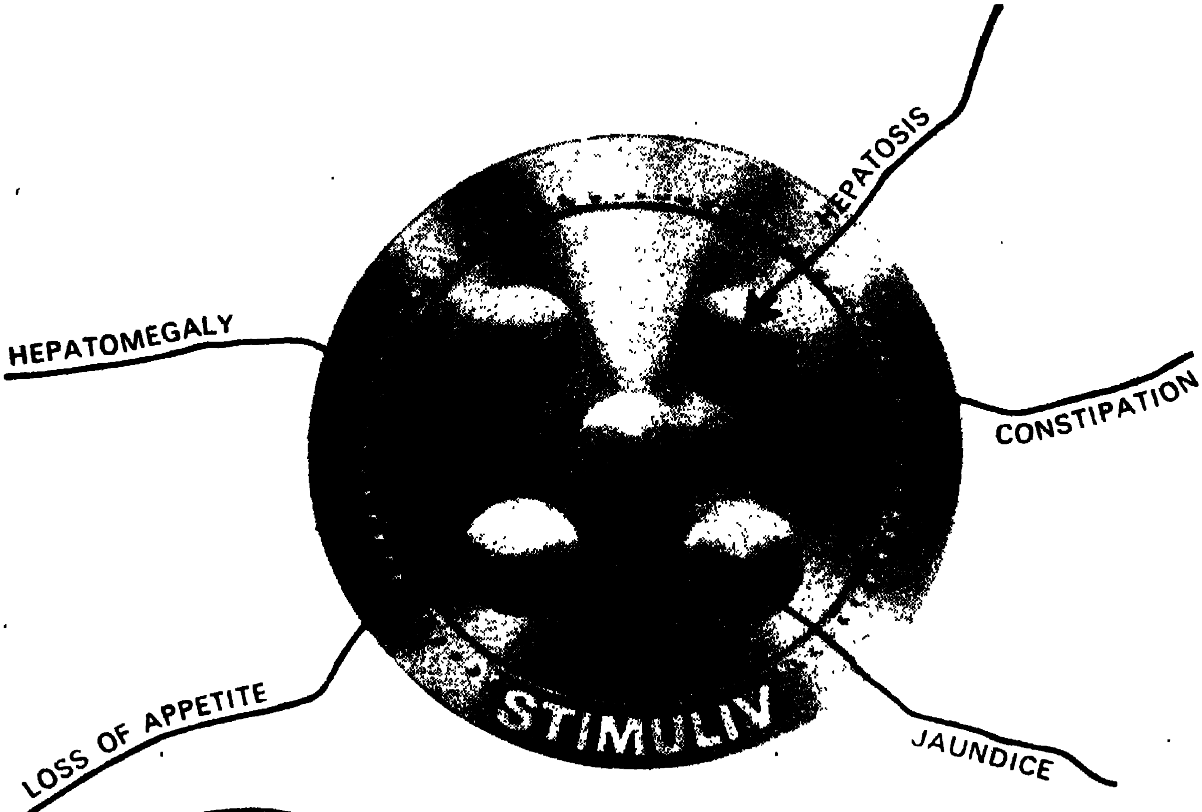

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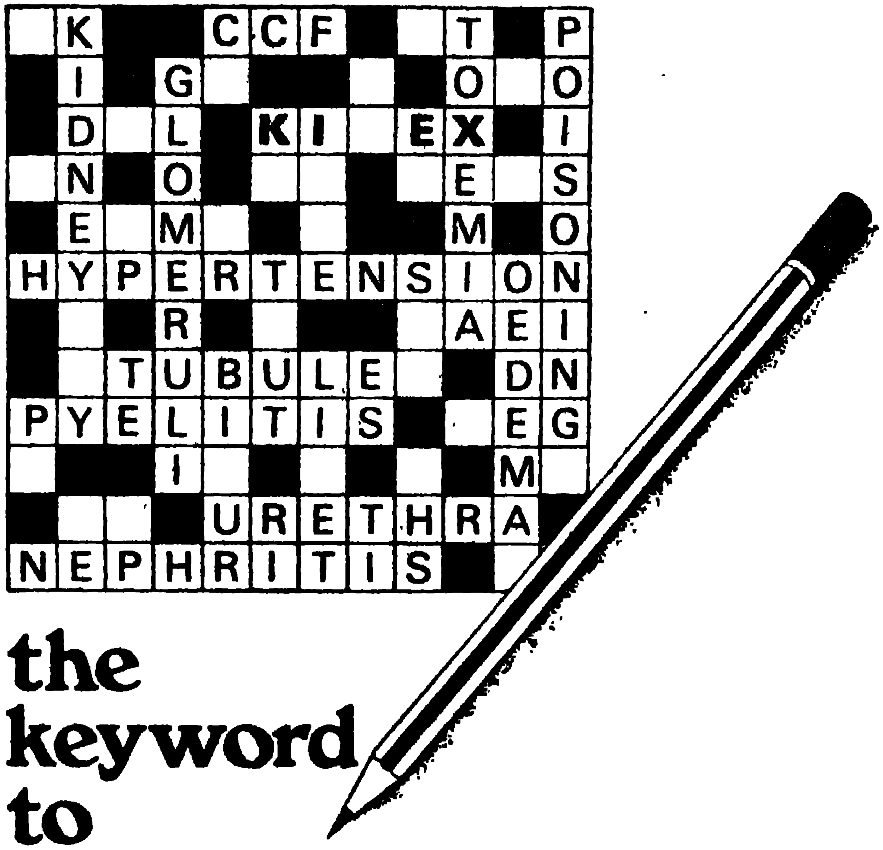

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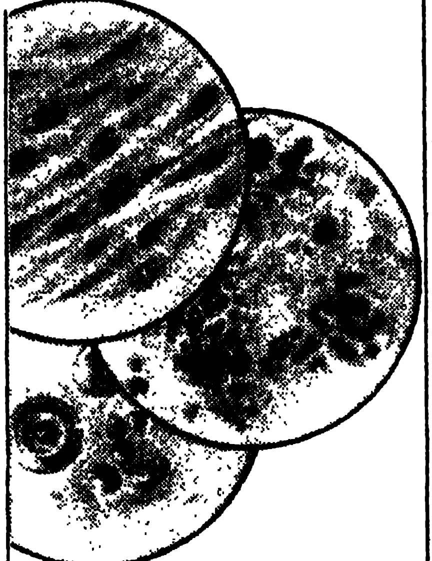

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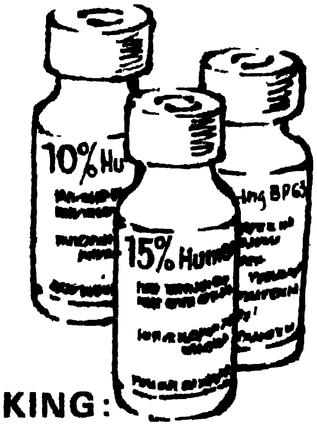

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CALCUTTA SEPTEMBER 16, 1978

ORIGINALS AND PAPERS

1

Observations on the Effect of Some Oral Contraceptive on the Ovary of Rat

PURNIMA GHOSH*, ARUNANSU DASGUPTA**, P. R. ROY***

[Received for publication May 13, 1976]

The population explosion has affected the economy of the world in all respects. Numerous methods of family planning have been advocated in recent years. Since the introduction of steroidal contraceptives by Pincus (1965) in the fifties of this century, such oral contraceptives have gained maximum popularity. In contrast to the sequential therapy of the earlier times the current approach is to use a combination therapy.

The present study was undertaken to note the possible histomorphological changes in the ovary under chronic use of such oral contraceptives.

MATERIAL AND METHOD

Twenty-one virgin female rats of Charles Foster strain weighing about 120-130 g. were considered for the study. The animals were maintained on a standard diet containing 20 per cent protein before and during observation: Atta-10 kg., chatu-2 kg., whole milk powder-200 g., sharkliver oil-200 ml., ground-nut oil-200 ml., calcium carbonate-50 g. sodium chloride-50 g. and vitamin mixture-225 ml. (stockpreparation); 15 g. of stock preparation = 20 per cent protein.

Twelve animals constituted the control group. The remaining 9 animals were used for the experiment and were divided into three groups of three each (groups I, II and III). The animals of the experimental groups were injected with a preparation of a mixture of megestrol acetate 5.0 mg. and ethinyloestradiol 0.03 mg. in 1 ml. of ethyl oleate in a dose of 0.15 mg. per 100 g. of body weight intramuscularly for 5 consecutive days every week with 2 days' gap for a period of 1, 2 and 3 months respectively. The parenteral route was selected to avoid variation of absorption of the drug from the gastro-intestinal tract.

The animals (3 control and 3 treated) were sacrificed 24 hours after the last injection at the end of 1st, 2nd and 3rd month respectively. The ovaries were removed, weighed, fixed in 10 per cent neutral formalin and embedded in paraffin. Sections were cut in a rotary microtome at a thickness of 6 micron, taken on glass slides and stained by the following methods:

(a) Haematoxylin and eosin, (b) Verhoeff's (1908) method for connective tissue staining, and c) Kluver and Barrera's (1953) teachnique for lipid.

OBSERVATIONS

Body weight in relation to ovary—The relationship of weight of ovary to that of body weight as a whole is shown in Table 1. The weight of the ovary was found to be diminished throughout

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*M.Sc. (Cal.), Junior Research Fellow, Indian Council of Agricultural Research, New Delhi

**M.Sc. (Cal.). Senior Research Fellow, Council of Scientific and Industrial Research, New Delhi

***B.Sc., M.B.B.S. (Cal.), Ph.D. (St. Andrews), Centenary Professor and Head of the Department of Anatomy, University College of Medicine, Calcutta University and Supervisor

TABLE I—SHOWING THE RELATIONSHIP OF THE WEIGHT OF THE OVARY WITH THAT OF THE BODY AS A WHOLE

Preparation of animal	Mean average weight of ovary (g.) ± SD	Mean average weight of body (g.) ± SD	Ovary/body weight ratio	Change in per cent of weight from control	P value
Control	0.0848±0.0032	198.0±7.0	0.00043 ±0.00006		
End of 1st month	0.0470±0.0026	173.0±9.0	0.00027 ±0.00010	37.21	Not significant
End of 2nd month	0.0320±0.0018	160.0±8.0	0.00020 ±0.00003	53.49	Not significant
End of 3rd month	0.0300±0.0020	157.0±5.0	0.00017 ±0.00004	60.47	Not significant

the period of the experiment. The diminution was most marked by the end of the 1st month but was less so by the end of the 2nd and 3rd months respectively following the injection of the drug. The ovary/body weight ratio was 0.00043±0.00006 in the control and 0.00027±0.00010, 0.00020±0.00003 and 0.00017±0.00004 respectively at the end of the 1st, 2nd and 3rd months. The change in percentage of the ovary/body weight ratio from control, on the other hand, was 37.21 per cent, 53.49 per cent and 60.47 per cent respectively at the end of the 1st, 2nd and 3rd months. The results, however, were statistically insignificant which might be due to the small size of the experiment.

HISTOPATHOLOGY:

A. *Control*—The normal structure of the control ovary shows the maturing graafian follicles, corpora lutea and stromal cells with connective tissue (Fig. 1, H. & E., × 100). Fig. 2 (Kluver Barrera method, × 100) shows the normal lipid content of the stroma, graafian follicle and corpus luteum. In the corpus luteum, the lipid activity was more in the central zone indicating greater steroidal activity in that region.

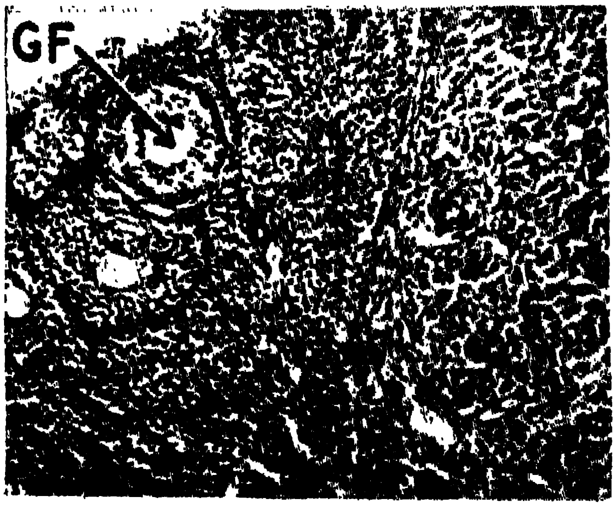

FIG. 1—SHOWING PHOTOMICROGRAPH OF CONTROL OVARY WITH MATURING GRAAFIAN FOLLICLE (GF), CORPORA LUTEA, STROMAL CELLS AND CONNECTIVE TISSUE

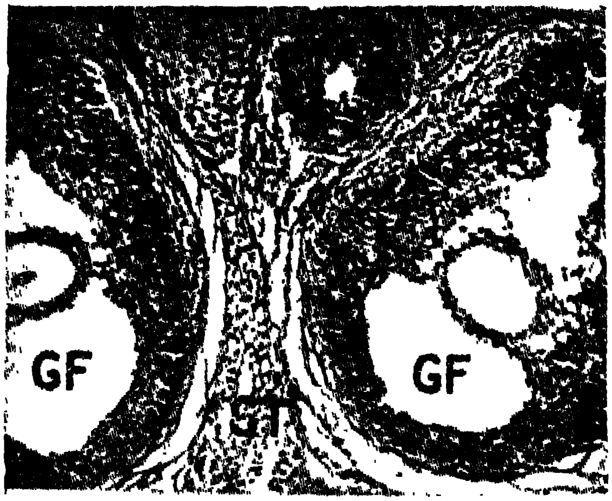

FIG. 2—SHOWING PHOTOMICROGRAPH OF CONTROL OVARY WITH NORMAL LIPID CONTENT OF STROMA (ST), GRAAFIAN FOLLICLE (GF) AND CORPUS LUTEUM

B. *End of 1st month*—The graafian follicles and corpora lutea showed different degrees of atrophic and degenerative changes without any appreciable change of their numbers (Fig. 3, Kluver Barrera method, × 100). The connective tissue fibres were

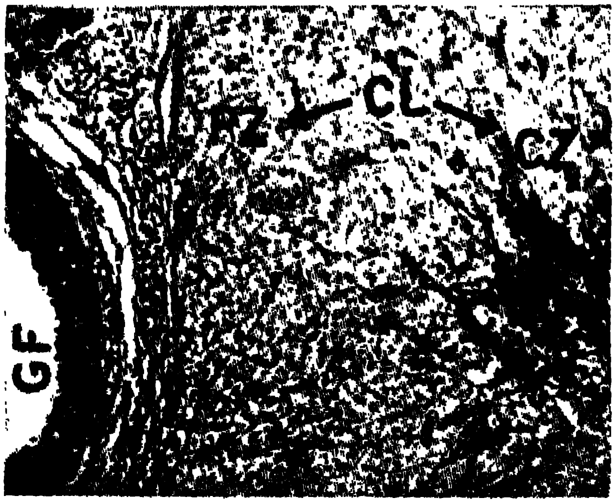

FIG. 3—SHOWING PHOTOMICROGRAPH OF OVARY WITH VARIABLE ATROPHIC AND DEGENERATIVE CHANGES IN GRAAFIAN FOLLICLE (GF) AND CORPORA LUTEA (CL); PZ-PERIPHERAL ZONE, CZ-CENTRAL ZONE

slightly increased with relative decrease of stromal cells. There was also associated increased vascularity of the organ and congestion of the vessels. The lipid content of the graafian follicles, corpora lutea and stroma, on the other hand, was greatly reduced.

C. *End of* 2nd *month*—The graafian follicles and corpora lutea were markedly atrophic, reduced in number and showed progressive degenerative changes. There was associated increase of the connective tissue fibres (chiefly collagen) with relative decrease of the stromal cells and increased vascularity and congestion of the blood vessels (Fig. 4, Verhoeff's method, ×100). All the aforesaid changes were more pronounced than those of the 1st month. The lipid content was reduced as in the previous month.

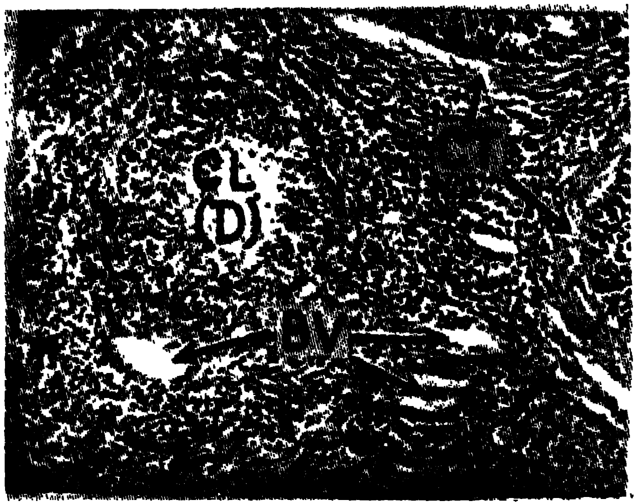

FIG. 4—SHOWING PHOTOMICROGRAPH OF OVARY WITH PROGRESSIVE DEGENERATIVE CHANGES IN GRAAFIAN FOLLICLES AND CORPORA LUTEA (CL/D), INCREASED CONNECTIVE TISSUE FIBRES (CT) AND CONGESTION OF BLOOD VESSELS (BV)

D. *End of* 3rd *month*—The graafian follicles and corpora lutea were almost completely degenerated and absent (Fig. 5, Verhoeff's method, ×100). The few, which were still present, showed gross degenerative changes, much greater than those of the 2nd month. The connective tissue fibres (chiefly collagen) were greatly increased and were more than the previous month with reciprocal diminution of the stromal cells. The increased vascularity and congestion persisted as before. The lipid content was also greatly reduced as in the previous month.

DISCUSSION

In the present study, the ovaries, under continuous influence of a mixture of oestrogen-progesterone preparation, showed well defined progressive changes. The rationale of using the drug in the rat for 5 consecutive days every week with 2 days' gap was to simulate the use of the same clinically in the human for 3 weeks with one week gap, since in the rat the ovarian cycle is completed in 5 days.

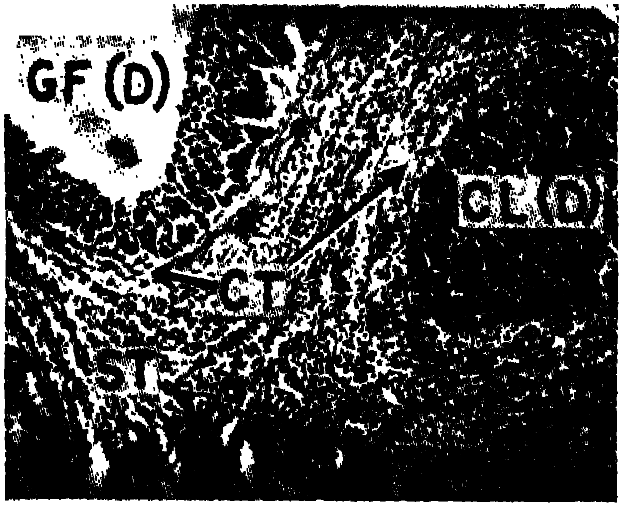

FIG. 5—SHOWING PHOTOMICROGRAPH OF OVARY WITH DEGENERATED GRAAFIAN FOLLICLE (GF/D) AND CORPORA LUTEA (CL/D), INCREASED CONNECTIVE TISSUE FIBRES (CT) AND DIMINISHED STORMAL CELLS (ST)

Sarwal *et al.* (1970) observed that under continuous influence of oestrogen and progesterone, the superficial keratinised layer of the vaginal epithelium was found to be absent and associated with oedema and decrease of stroma. De Virglliis and Standacher (1971) observed atrophic changes in the ovary following prolonged use of oral contraceptive in the rat. Myhre (1972) observed a reduction of the number of follicles with decrease in the size of ovaries and luteinised stromal cells. He further noted neoplastic growth in the ovary.

In the present observation, there was a gradual increase of the connective tissue fibres with relative decrease of the stromal cells indicating a progressive fibrotic change of the ovary with gradual loss of its functional importance. The graafian follicles and the corpora lutea became gradually atretic and degenerated. The aforesaid changes, coupled with fibrotic reaction, were responsible for the progressive atresia, smaller size and loss of weight of the ovaries. The observations are in agreement with those of De Virgiliis and Standacher (*loc. cit.*), Sarwal *et al.* (*loc. cit.*) and Myhre (*loc. cit.*).

The present observation, furthermore, showed that the lipid content of the stroma, graafian follicle and corpus luteum of the ovary was markedly reduced after the end of the 1st month; this reduction, however, was very little after the end of the 2nd and 3rd months. This reaction could be due to the lack of FSH and LH, which not only stimulates the synthesis of steroid but also takes part in the lipid transport through adenyl cyclase system (Williams, 1970).

It has been proved that continuous administration of oestrogen, even in moderate doses, causes ovarian atrophy due to inhibition of pituitary function (Coutinho and Maia, 1972; Pujol-Amal *et al.*, 1971). In the present experiment, the increase of connective tissue fibres, atrophic changes of the follicles and reduction of the size of the ovary are corroborative in this respect. Whether, this is an irreversible reaction or not has yet to be established and needs more detailed observations on the enzymatic reactions and tissue response after withdrawal of the drug for a prolonged period. Furthermore, the increased vascularity and congestion of the organ might be either due to the action of the drug or simply nature's protective mechanism to remove the debris and to heal by fibrosis or both.

CONCLUSION

In conclusion, it may be stated that a long term use of oral contraceptives may lead to permanent ovarian dysfunction which is a matter of serious consequence and should be investigated thoroughly for proper re-evaluation. In spite of the manifold advantages, such combination therapy has some important drawbacks which are of great clinical importance requiring more critical assessment.

SUMMARY

Contraceptive preparations have made a major break through in the control of the world population and family planning. In addition to their high rate of success, the preparations have created a panorama of medical problems. In the present study, attempts have been made to observe the effects of prolonged use of some oral contraceptive on the histomorphology of the ovary.

Virgin adult female rats of Charles Foster strain, weighing about 120-130 g. and treated with preparation of a mixture of megestrol acetate 5.0 mg. and ethinyloestradiol 0.03 mg. in 1 ml. of ethyl oleate in a dose of 0.15 mg. per 100 g. of body weight intramuscularly for 5 consecutive days every week with 2 days' gap for a period of 3 months. The ovary-body weight ratio was insignificantly diminished throughout the period of the experiment. The ovaries showed progressive atrophic and degenerative changes of the graafian follicles and corpora lutea with associated decrease of the stromal cells and marked reduction of the lipid content; there was concomitant increase of the connective tissue fibres, chiefly collagen and vascularity of the organ along with congestion of the blood vessels. The mechanism of action of the drug and its effects have also been discussed.

ACKNOWLEDGMENT

The work was done under the direct supervision of the third author. The authors thank sincerely Sri Siddhartha Mitra, Sri Amal Majumdar and Sri Susanta Sinha Roy of the Department of Anatomy for their kind assistance.

Secrodyl (BDH/Glaxo' brand of a combination of megestrol acetate and ethinyloestradiol was used.

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Influence of Premedication with Diazepam, Prochlorperazine and Triflupromazine on Blood Glucose Level

A. K. PAUL*, B. BHATTACHARYA**

[Received for publication July 20, 1976]

Influence of various types of common premedicant drugs like morphine, pethidine, atropine, promethazine, etc., have been studied to some extent (Jaffe, 1965; Mehta, 1971), but the newer and at the same time popular premedicant drugs like diazepam, prochlorperazine and triflupromazine have not been much investigated so far as their effect on blood glucose level is concerned.

Medical College and Hospitals, Calcutta
* M.B.B.S., D.A., M.S. (Anaesth.), Anaesthetist
**M.B.B.S. (Cal.) House Surgeon

The present study aims to find out the influence of these premedicant drugs on fasting blood glucose level in normal subjects and then to assess the physiological implication by analysing them statistically.

MATERIAL AND METHOD

One hundred adult patients of either sex awaiting elective surgery were investigated in the present study. The patients with obvious metabolic diseases or those suffering from fever or electrolyte imbalance were not included in the study. None of the patients received blood or glucose infusion at least for 48 hours before the investigation. All patients were under 40 years of age and non-diabetic. Though the glucose challenge test was not done to exclude unrevealed diabetes, but their fasting blood glucose levels (70 to 110 mg. per 100 ml.) were within normal limits (Wylie and Churchill-Davidson, 1972).

The patients were divided in 4 groups consisting of 25 cases in each according to the type of premedication.

Group A—no premedication; served as controls. Group B—diazepam, 10 mg. IM. Group C—prochlorperazine, 12.5 mg. IM. Group D—triflupromazine, 10 mg. IM.

The patients were allowed to take light meal in the previous night at 8 PM and thereafter no food was given. At 7 AM on the following day fasting venous blood sample was taken for estimation of blood glucose level followed by injection of premedicant drug. At 8 AM the second blood sample was taken one hour after injection. The patients in group A received no premedication, but the blood samples were drawn similarly as in the other groups. The blood glucose level was estimated by the method of Asatoor and King (cited by Varley, 1969) by one of the authors (B.B.).

RESULTS

Table 1 shows average age and sex of the patients of various groups and also mean values of initial blood glucose levels. The initial blood glucose levels were found to be within normal physiological range.

Table 2 shows effects of the drugs on blood sugar levels.

It is evident from Table 2 that in control group there was progressive fall of blood glucose level in prolonged starvation. But in premedicated patients there was little and insignificant rise of blood glucose level.

Table 3 shows that when the blood glucose levels in groups B, C and D were compared with group A (control) there were statistically significant relationship. But the relationships became quite insignificant when the blood glucose levels of patients with different premedications were compared with each other.

TABLE 1—SHOWING THE AGE, SEX AND INITIAL BLOOD GLUCOSE LEVEL OF THE PATIENTS STUDIED

Group	No. of patients	Average age (years)	Male	Female	Initial blood glucose (mean in mg. %)
Control	25	33.40	15	10	74.08±5.82
Diazepam	25	36.34	14	11	80.4 ±0.72
Prochlorperazine	25	35.12	13	12	76.3 ±3.7
Triflupromazine	25	34.84	12	13	74.0 ±2.5

TABLE 2—SHOWING THE EFFECTS OF THE DRUGS ON BLOOD GLUCOSE LEVEL

Group	Mean change	't' value	P-level	Significance
Control	−7.2±1.1	6.36	<0.2%	Significant
Diazepam	1 ±1.8	0.56	>10%	Insignificant
Prochlorperazine	2 ±2.4	0.73	>10%	Insignificant
Triflupromazine	3.6±2.7	1.5	>10%	Insignificant

TABLE 3—SHOWING RELATIONSHIP OF MEAN CHANGES OF BLOOD GLUCOSE LEVEL

Group	't' value	P-level	Significance
Control *vs* diazepam	3.6	< 1%	Significant
Control *vs* prochlorperazine	3	< 1%	Significant
Control *vs* triflupromazine	4.1	<0.1%	Significant
Prochlorperazine *vs* triflupromazine	0.4	> 10%	Insignificant
Prochlorperazine *vs* diazepam	0.03	> 10%	Insignificant
Triflupromazine *vs* diazepam	0.08	> 10%	Insignificant

DISCUSSION

The effect of premedication with diazepam, prochlorperazine and triflupromazine on fasting blood glucose level was not much studied earlier. The results obtained so far regarding the effect of phenothiazine derivatives on blood sugar level differ widely. De Blasi (cited by Mehta, *loc. cit.*) observed a decrease of blood sugar level with the use of 50-100 mg. of promethazine. Amidsen (cited by Mehta, *loc. cit.*) found an abnormally high blood sugar level during treatment with repeated doses of chlorpromazine. Prochlorperazine and triflupromazine are 2 phenothiazine derivatives popularly used as anti-emetic agents. These drugs are nowadays being used extensively in pre-anaesthetic medication (Dobkin and Parkin, 1960;

Sheiner, 1962; Wetzler, 1962; Saha and Pramanik, 1974).

Diazepam, a benzodiazepine derivative is in common use as minor tranquilliser, hypnotic and anticonvulsant and at present widely used in pre-anaesthetic medication as it better relieves pre-operative apprehension and anxiety (Wylie and Churchill-Davidson, *loc. cit.*). Haslett and Dundee (1968) thought it to be superior to morphine, pethidine, pentobarbitone and several phenothiazine derivatives so far as relief of pre-operative anxiety and stress are concerned.

In the present series, all attempts were made to allay the pre-operative fear, anxiety and apprehension by means of pre-operative visit with adequate persuasion and reassurance. Of course, all the premedicant drugs which were used, were anxiolytic and were administered one hour before operation on the day of the study.

Saton and Iwamoto (1966) observed an increase in blood sugar level in rats by using chlordiazepoxide. Lambert *et al.* (cited by Mehta, *loc. cit.*) and Navarranne *et al.* (cited by Mehta, *loc. cit.*) observed no abnormality following treatment with diazepam on psychosomatic patients. Mehta (*loc. cit.*) used atropine and diazepam together in premedication and observed a significant fall of blood sugar level, but he could not pinpoint the cause which might be either due to pre-operative starvation or due to specific effect of the drug on carbohydrate metabolism.

In the present study in control group there was significant fall of blood glucose level which showed only the effect of prolonged pre-operative starvation. This initial fasting blood glucose level was 74.08 mg. per cent ±5.82 in 11 hours of fasting and an additional one hour of fast resulted in further fall of 7.2 mg. per cent. ±1.1. In other groups, premedication with either of diazepam, prochlorperazine and triflupromazine caused insignificant little rise of blood glucose (Table 2), but when compared with the control group the differences became quite significant (Table 3). Though diazepam, prochlorperazine and triflupromazine caused rise of blood glucose level in ascending order of potency, but their specific effects on carbohydrate metabolism when compared with each other became statistically insignificant and thus behaved more or less in the same manner. Mehta (*loc. cit.*) of course pointed out that "most of the premedicant drugs produce a rise in blood sugar".

Thus it can be concluded from the study that prolonged pre-operative starvation causes progressive fall of blood glucose level but the premedicant drugs like diazepam, prochlorperazine and triflupromazine prevent this fall to some degree and even cause little and insignificant rise of blood glucose level. These changes were within the range of physiological variation and thus the drug do not apparently produce diabetogenic effect in normal subjects when used as premedicant.

ACKNOWLEDGMENT

We are grateful to Prof. B. K. Chakravarti, Superintendent, Medical College and Hospitals, Calcutta for permission to carry out the study and to publish the report and to Prof. S. Pramanik for his kind guidance. We are thankful to Dr. S. C. Ray, Medical Consultant, May & Baker (P) Ltd. for supply of 'stemetil' brand of prochlorperazine, to Ranbaxy Laboratories Ltd. for supply of 'calmpose' brand of diazepam and to Life Pharmaceuticals (P) Ltd. for supply of 'flumazin brand of triflupromazine.

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PRACTITIONERS' SERIES

Management of Chronic Renal Failure

P. SEN*

Chronic renal failure is defined as a persistent end stage of renal failure with glomerular filtration rate (GFR) below 25 per cent of normal, persisting for more than 6 months. This may result from diverse aetiological factors of which glomerulonephritis and chronic pyelonephritis are the most common offenders. Three broad therapeutic approaches are available at present which are interdependent on each other, namely conservative

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Institute of Postgraduate Medical Education and Research, Calcutta

* M.D., F.R.C.P., Head of the Department of Medicine

management, regular intermittent dialysis and renal transplantation programme.

It must be emphasised that conservative treatment is very useful as it can be applied to all patients with chronic renal failure without the need for costly and sophisticated apparatus and it can effectively support a patient till the renal function is one per cent of normal. It should be remembered that the facilities for intermittent haemodialysis and renal transplantation are extremely limited even in highly advanced countries, and only 0.5 to 1 per cent of patients with chronic renal failure may benefit from this. Hence in a developing country, like ours, there is a place for well planned conservative management supported by good laboratory facilities and a well informed dietitian in the management of end stage of irreversible renal failure.

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The conservatve management of chronic renal failure includes dietary measures with low protein intake of high biological value, careful maintenance of fluid and electrolyte balance including control of hyperkalaemia and acidosis, rigid control of hypertension and cardiac failure, removal of factors which interfere with renal function, like urinary infection, obstruction to the genito-urinary tract or use of nephrotoxic drugs and symptomatic treatment of various complications like anaemia, bleeding, gastro-intestinal haemorrhage, neurological symptoms, osteodystrophy, gout and pruritus.

DIETARY MANAGEMENT:

The fundamental principle of dietary regimen is the supply of adequate calories and restricted amount of proteins of high biological value containing essential amino acids. The reduction of protein intake should be commensurate with declining renal failure. Thus, 18 to 20 g. protein intake is needed for a patient with a GFR of 3 ml./minute or less, 25 to 30 g. for a patient with a GFR of 5 ml./minute and 40 g. for a patient with GFR of 7 to 10 ml./minute. It is best to give this 20 to 40 g. protein in the form of Gierdano-Giovanetti diet (Giovanetti and Maggiore, 1964) in which one or two cups of milk with one egg is given as a source of protein with high biological value and rest of 2000 calories (30 calorie per kg.) of the diet is built up with carbohydrate and fat in a ratio of 3:1. With such a carefully constructed low protein diet of high biological value it has been shown that the protein catabolism is prevented, the GFR improves, the gastro-intestinal symptoms of uraemia is ameloriated and the patient can get back to his feet and return to work. Thus, milk and rice, curds, boiled eggs, sweetened cream, honey, clear jam or jelly and baked potatoes and other vegetable supplements provide good source of calories for patients with chronic renal failure. Since the diet of these patients is often deficient due to anorexia, it should be properly supplemented by vitamin intake, and haematinic supplements with ferrous sulphate 300 mg. 2 or 3 times a day and folic acid 5 mg. once daily should be provided.

REGULATION OF WATER, ELECTROLYTE AND ACID BASE-BALANCE:

Fluid –The optimum fluid intake should be individualised depending on the urine volume and clinical state of hydration of the patient. As a general principle, it should be equal to the previous days urine output plus the estimated insensible fluid loss (5-10 ml./kg. body weight). If the patient is grossly overhydrated with very little urine volume the intake should be drastically cut down. One of the loop diuretics like frusemide or ethacrynic acid may be helpful in such a situation and large doses of frusemide up to 1 to 2 g. daily may be used orally or parenterally in the presence of renal failure. More often, patients with chronic renal failure are polyuric with 2 to 3 litres of urine output daily and dehydrated. In these cases, sodium and water restriction is not necessary and adequate supply of salt and water should be provided. The clinical state of hydration, the blood pressure, the body weight record and the serum electrolyte estimation should serve as guideline for the amount of salt and water to be given.

Electrolytes – A high serum potassium level is common in advanced chronic renal failure. Usually, it is best dealt with by reduction of oral potassium intake to 30 mEq. or less per day. The food stuffs which contain large amount of potassium like fresh fruits, fruit juices, cocoanut water, vegetables, nuts, cocoa or chocolate should be avoided. Vegetables may be consumed after having boiled them first and discarding the water which is rich in potassium. A careful watch should be kept on rising values of serum potassium level by frequent biochemical estimation and EEG control. When values in excess of 6 mEq./l. are found, oral cation exchange resin preferably in sodium or calcium cycle (like sodium polystyrene) should be given in 15 to 30 g. doses mixed with 50 per cent glucose or 70 per cent sorbitol every 4 to 6 hours. If hyperkalaemia of lethal proportions develops (serum potassium above 7 mEq./l.), the patient should immediately be given sodium bicarbonate solution – 8.4 per cent and 50 per cent dextrose with 20 units of soluble insulin intravenously, which may help the shift of potassium into the cells.

Calcium gluconate 10 per cent 20 ml. should also be given in order to counteract the cardiotoxic effect of potassium. These are all temporary measures and if serum potassium still goes up above 7.5 mEq./l., the patient should be subjected to dialysis.

Acidosis—Patients with advanced chronic renal failure is often associated with metabolic acidosis which may manifest clinically by acidotic or Kussmaul's breathing. This should be corrected by oral administration of sodium bicarbonate—3 to 6 g. as powder dissolved in 50 per cent dextrose solution as drinks or one sixth molar sodium lactate solutions. Calcium carbonate, 5 g. per day, has also been used specially when administration of sodium is contra-indicated. In severe acidosis, sodium bicarbonate should be administered intravenously and the amount of bicarbonate required in mEq. may be calculated from 50 per cent of body weight in kg. × bicarbonate deficit (i.e., 27-serum bicarbonate content). As one ml. of 8.4 per cent sodium bicarbonate solution is equivalent to 1 mEq. of bicarbonate, the dosage may be easily calculated.

CONTROL OF HYPERTENSION AND CARDIAC FAILURE:

Hypertension is often difficult to control in advanced chronic renal failure. Salt overloaded patients are more refractory to the standard antihypertensive drugs and malignant hypertension is common in end stage kidney disease, irrespective of the aetiology of the initial disease. This uncontrolled volume dependent hypertension can be effectively treated with a vasodilator like dihydrallazine sulphate 25 to 100 mg. daily with frusemide in doses up to 2 g. orally daily (500 mg. frusemide tablets, now available, may be useful). To this regimen, methyldopa may be added in doses of 0.5 to 2 g. as necessary. For maintenance therapy, choice lies between hydrallazine hydrochloride, methyldopa and clonidine hydrochloride combined with frusemide. Propranolol in doses up to 1 g. or more per day is sometimes useful as an adjunct therapy specially in cases with high renin level, but seldom it is so effective in severe renal hypertension and it should not be used in the presence of cardiac failure. The antihypertensive drugs tend to accumulate progressively in the presence of renal failure and therefore it is wise to increase the dose of hypotensive drug slowly. About 5 per cent patients with intractable hypertension, not controlled by drugs and dialysis, may require bilateral nephrectomy.

Uncontrolled volume dependent hypertensive patients often present with cardiac failure which may be further complicated due to the presence of severe anaemia and hyperkalaemia and these cases may be treated with intramuscular hydrallazine hydrochloride (10-40 mg.) or diazoxide with intravenous frusemide up to 1-2 g. Digoxin may be used in very small doses taking care of renal clearance, the maintenance dose should be half to one third of normal amount.

MANAGEMENT OF COMPLICATIONS:

(1) *Haematological*—The treatment of refractory anaemia of chronic renal failure is unsatisfactory, which may be due to bone marrow depression, haemolysis, diminished erythropoietin production or blood loss. Patients often have an iron deficiency anaemia and they may be treated by iron and folic acid supplements. Parenteral iron therapy may be helpful as oral iron absorption may be unpredictable. The anabolic steroids e.g., nandrolone phenylpropionate 25 mg. twice a week and testosterone may be used to stimulate erythropoiesis due to their protein anabolic effects. Blood transfusion may be tried if the patient is severely anaemic or having bleeding manifestations. The disadvantages of blood transfusion is volume overload, introduction of infection like malaria, viral hepatitis and syphilis and sensitisation by donor lymphocytes and antibody formation which may interfere with future transplantation programme.

(2) *Gastro-intestinal*—Anorexia, nausea, vomiting, hiccup, constipation and diarrhoea are common gastro-intestinal complications due to uraemic gastritis and colitis. These patients are helped by modified Giovanetti diet (Giovanetti and Maggione, *loc. cit.*), non-magnesium containing antacids (aluminium hydroxide gel), chlorpromazine hydrochloride 10 mg. thrice daily and metoclopramide hydrochloride which effectively controls troublesome vomiting and hiccup.

(3) *Bone and joint*—Azotaemic osteodystrophy in the form of osteomalacia, osteosclerosis and osteitis fibrosa cystica due to secondary hyperparathyroidism may complicate long standing cases of chronic renal failure. These patients may complain of intractable bone pains and is diagnosed by radiological bone changes especially in spine (Rugger-Jers spine).

The treatment comprises prophylactic administration of calcium lactate or gluconate orally with aluminium hydroxide gel which binds phosphate in gut and thus lowers serum phosphate level. Besides, vitamin D_2 (calciferol) may be administered—10,000 to 20,000 units daily or 3 lac to 6 lac units parenterally once a month, if serum calcium level is low. If there is evidence of secondary hyperparathyroidism, the patient should be carefully evaluated in consultation with a surgeon for possible

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role of parathyroidectomy. Correction of metabolic acidosis, as discussed earlier, is also helpful in the control of bone changes.

Joint pains in the form of gout or pseudogout may arise as a complication of chronic renal failure. If serum uric acid level is elevated, it should be treated by allopurinol, 100 mg. thrice daily. Pseudogout may be effectively treated by colchicine, 0.5 mg. every 4 to 6 hours.

(4) *Neurological*—Metabolic encephalopathy often complicates a case of chronic renal failure manifested by increasing drowsiness, stupor, coma, tremor and occasionally convulsions. The convulsions which may be dramatic in onset should be treated with diazepam, 10 mg. intravenously or phenytoin sodium, 100 mg. intravenously and later on orally. Uraemic neuropathy may occasionally present as intractable burning sensation and pain in limbs, hyporeflexia and decreased motor function detected by delayed nerve conduction velocity. Diazepam, 5-10 mg. orally or vitamin injections may be tried. But, often this is an indication for dialysis.

(5) *Infections*—The patients with chronic renal failure are very much prone to various infections with opportunistic microbes and pulmonary and urinary infection with septicaemia often occur as dreaded complications. Ampicillin, erythromycin, chloramphenicol, co-trimoxazole, gentamicin sulphate are usually used in such a situation, the dosage being adjusted according to blood level and creatinine clearance. Tetracyclines, nitrofurantoin and cephalosporin-N should be avoided.

(6) *Pruritus*—Pruritus may manifest as a troublesome complication of advanced chronic renal failure. Its pathogenesis is not clear and may not be related to metastatic calcification in majority of cases. Local application of calamine lotion and small doses of chloropromazine (10 mg. thrice daily) or chlorpheniramine maleate (2 mg. thrice daily) often reduce the intensity of itching.

CORRECTION OF PRECIPITATING FACTORS:

Various aggravating factors like urinary infection, obstructive uropathy, water and electrolyte imbalance due to vomiting and diarrhoea and inadvertent use of nephrotoxic drugs may further jeopardise renal function in a patient with chronic renal disease. A patient with chronic renal failure should be carefully evaluated for the presence of these precipitating factors, correction of which materially improves renal function in these patients.

REGULAR INTERMITTENT DIALYSIS

During the last decade, newer techniques have evolved which can prolong life indefinitely by regular intermittent dialysis and eventually can offer cure by renal transplantation and this has raised great hopes to the unfortunate victims of terminal and irreversible renal failure, who were previously condemned to death. It must be emphasised that peritoneal dialysis is of limited value in prolonged intermittent dialysis therapy for chronic renal failure and regular efficient haemodialysis has become the major pre-occupation of nephrologists in affluent countries. With limited resources at our disposal and very few haemodialysis centres in this country, it is hardly feasible to offer prolonged intermittent haemodialysis to many patients, unless it is linked with renal transplantation programme.

Indications—The indications for dialysis in chronic renal failure are based on clinical manifestations and biochemical parameters. Patients with features of progressive encephalopathy, pericarditis, pulmonary oedema, neuropathy and bleeding manifestation, blood urea level above 200 mg. per cent, serum creatinine level over 10 mg. per cent, serum potassium level above 7 mEq/l. and serum bicarbonate level less than 13 mEq./l. are suitable candidates for dialysis.

Dialysis—Regular haemodialysis requires a ready access to vascular system (by arteriovenous shunt or subcutaneous AV fistula), a suitable low volume dialyser and a dialysate delivery system with safety monitors. A suitable dialysate should be sterile and has a composition of Na-134 mEq./l. K-2 mEq./l. chloride-102 mEq./l. Ca-3 mEq./l. Mg-1 mEq./l., acetate or lactate-35 mEq./l. and glucose 1.5, 4 or 6.5 per cent. The most popular schedule of dialysis, at present, is 3 sessions of 10 hours per week on a good quality dialyser.

Complications—Patients on maintenance dialysis are confronted with many complications like hypertension, pulmonary oedema, haemopericardium, myocardial infarction and viral hepatitis and mortality may be around 10 to 15 per cent per year. Chronic complications like peripheral neuropathy, bone disease, anaemia and psychosis may lead to considerable morbidity. Patients on peritoneal dialysis face further complications like peritonitis, haemorrhage, bowel perforation, pulmonary collapse and ascites.

Expense—Long term maintenance haemodialysis therapy, either at home or in hospital, in a case of chronic renal failure involves huge expenses. The approximate expense for dialysis in a hospital is Rs. 6000/- per month, for home dialysis Rs. 1500/- per month and the cost of importing a single patient dialysis system is about Rs. 75,000/- which very few patients in this country can afford.

RENAL TRANSPLANTATION

Human renal transplant operations have become a well documented procedure for the treatment of terminal renal failure. The surgical technique and basic immunosuppressive drug protocols are fairly well standardised at present.

Selection of patient—Only patients in terminal stages of chronic renal failure (GFR 2 ml./minute or below) should be considered as possible candidates for renal transplantation. In general, adults are most suitable recipients; small children, elderly people and patients with systemic disease like diabetes mellitus, disseminated lupus erythematosus (DLE), etc., should be avoided.

Donor—A suitable donor may be a blood related or non-related living donor or a cadaver from whom kidneys are removed within one hour of death. Good results (Murray *et al.*, 1971) are obtained with a live blood related donor with same ABO group and a good match on tissue typing using human leucocyte antigen.

Complications—The complications of renal transplantation are mostly related to rejection of the transplant and the immunosuppression therapy which makes the patients more prone to infection and also related to technical problems of transplant surgery.

The rejection of transplanted kidney is prevented by the use of immunosuppressive drugs like corticosteroids, azathioprine and cyclophosphamide and patients should be nursed in a sterile unit with arrangements for barrier nursing.

SUMMARY AND CONCLUSION

It should be realised that the three methods of treatment of chronic renal failure, viz, conservative management, regular intermittent dialysis and renal transplantation are not mutually exclusive, rather they are complementary to each other. In the early phases of renal failure, conservative treatment is suitable for the support of the patient. When renal function deteriorates, further regular intermittent dialysis therapy on the artificial kidney or renal transplantation is needed. In general, for a person below the age of 55, kidney transplantation offers the best chance of rehabilitation at a lesser cost, provided the kidney is available from a blood related donor with identical blood group and suitable tissue match. In elderly patients and those with systemic disease, the complications from renal transplantation appear to be formidable. In such situations, intermittent home dialysis may be advised which is a very costly affair.

In conclusion, chronic renal failure is quite a common disease condition and poses a great therapeutic problem in India today. It is axiomatic that conservative treatment is unsatisfactory and dialysis and transplantation are at the wrong end of the therapeutic spectrum of chronic renal diseases. An effort should be made for preventive measures, like early diagnosis and treatment of urinary tract infection, removal of urinary tract obstruction, avoidance of nephrotoxic drugs and correction of ureteric reflux. The above factors go a long way to save many of these unfortunate patients who are young and promising and are useful and productive members of the family.

ACKNOWLEDGMENT

Resonin A (Winthrop) brand of sodium polystrene sulphonate, durabolin (Organon) brand of nandrolone phenylpropionate, aludrox (Wyeth) brand of aluminium hydroxide gel, largactil (May & Baker) brand of chlorpromazine hdrochloride, zyloric (Burroughs Wellcome) brand of allopurinol, reglen (Cosme Pharma Laboratories) brand of metoclopramide hydrochloride, kill dialyser (Life Med. Corporation, American Hospital Supply Union, USA) or Travenol dialyser (Travenol Laboratories Incorporated, Deconfield, Illionois, USA) may be suggested for use.

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CASE NOTES

1

Corrosive Stricture of Gastric Antrum

P. K. CHATTOPADHAYAYA*

Stenosis of stomach due to corrosive with sparing of oesophagus is sufficiently uncommon (Hodgeson, 1959). Citron *et al.* (1968) mention that concentrated acids tend to spare the oesophagus and produce the major corrosive effects in the stomach. According to Ritter *et al.* (1971), the most commonly ingested substances have been acids and characteristically these substances do not damage the oesophagus but instead cause gastric and duodenal necrosis. The oesophagus is not harmed by acid because its mucosa is alkaline and has too brief an exposure to the corrosive during swallowing to damage it. The first case of corrosive lesions of stomach without involvement of oesophagus was described by Robert in 1928 (cited by Gray and Holmes, 1948) and sulphuric acid

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Kalimpong Sub-divisional Hospital, Darjeeling
*F.R.C.S., Surgeon

was the offending agent in his case Gray and Holmes (*loc. cit*) reviewed 139 cases of pyloric stenosis due to ingestion of acid corrosives and observed that acids have a preferential effect on distal stomach resulting in progressive stenosis usually starting 3-4 weeks after ingestion A few such cases has been reported in the Indian literature (Sharma *et al*, 1962; Mehrotra, 1969; Sinha *et al*, 1972, Deshpande and Mehta, 1976) Acid corrosives causing pyloric stenosis include hydrochloric acid, sulphuric acid, nitric acid, acetic acid, trichloroacetic acid, carbolic acid and oxalic acid (Poteshman, 1967)

Case Report

G V, aged 28 years, Hindu, male, motor car driver was admitted on 1-12-1975 in the Kalimpong Sub-divisional Hospital with history of accidental swallowing of about 4 oz of acid used for car battery (5 times diluted sulphuric acid) on full stomach, while he was in a drunken state on the night of 4-11-1975 Immediately afterwards he got severe epigastric pain and vomited some blackish stuff when he was taken to some other hospital where he was treated conservatively and discharged after 3 days Since then he always used to vomit immediately after meals retaining only small meals like milk and biscuits at the beginning, but later on, from 4th week of November, 1975 he failed to retain anything even water He was brought in this state to the Kalimpong Sub-divisional hospital 27 days after ingestion of the acid He had only one small constipated melaena stool on 27-11-1975 since the accident He gave history of chronic alcoholism for the last 14 years, excessive drinking for the last 3 years and gastritis periodically

Examination—His general condition was very poor, he was very cachectic and extremely dehydrated, his upper abdomen showed distension, typical of pyloric obstruction Examination of chest revealed severe bilateral bronchopneumonia

Investigations—His haemoglobin was 10 9 g per cent Barium swallow and barium meal x-ray done on the day of admission demonstrated complete outlet obstruction with dilatation of the stomach and a normal oesophagus (Figs 1, 2)

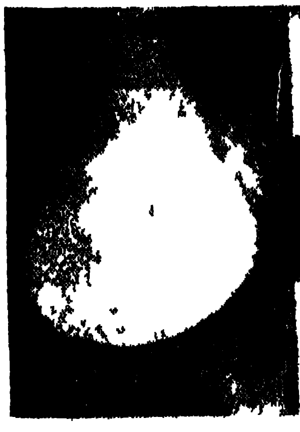

FIG 1—SHOWING COMPLETE OUTLET OBSTRUCTION WITH DILATATION OF STOMACH IN BARIUM MEAL X-RAY

FIG 2—SHOWING NORMAL OESOPHAGUS IN BARIUM SWALLOW X RAY

Management—He was treated with glucose saline drip, antibiotics, nasogastric suction, extensive physiotherapy and other supportive treatment till 12-12-1975 when he was operated upon under local anaesthesia. In view of his poor general condition, general anaesthesia was avoided At laparotomy, the stomach was found to be dilated proximal to a firm stricture at the pyloric antrum The stricture was 4 cm proximal to the pyloric sphincter, 2 cm long and 2 5 cm in transverse diameter (Fig 3) Pyloric antrum distal to the stricture, pyloric sphincter and duodenum were found to be completely normal There was no evidence of gastric or duodenal ulcer. A posterior retrocolic isoperistaltic gastrojejunostomy was carried out The patient improved steadily after the operation and had bowel action on the 1st postoperative day and since then had his motions regularly A barium meal x-ray check-up on the 7th postoperative day showed well-functioning gastrojejunostomy

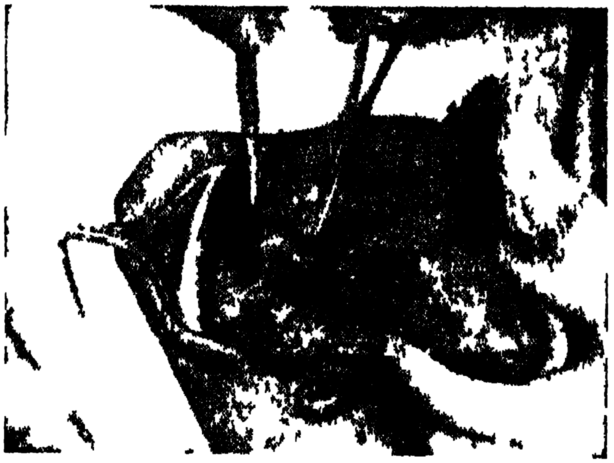

FIG 3—SHOWING ANTRAL STRICTURE (INDICATED BY RIGHT HANDED FORCEPS) AND A NORMAL PYLORUS WITH PREPYLORIC VEIN (INDICATED BY LEFT HANDED FORCEPS)

Follow-up—At follow-up after 2 months the patient had no complaints and had regained his normal health

Discussion

The interesting feature of the case under report is the localised cicatrisation of pyloric antrum without involvement of oesophagus caused by accidental ingestion of dilute sulphuric acid Hodgeson (*loc cit*) observed that gastric stricture due to sulphuric acid has been reported less frequently An accurate picture cannot be given as many die before the stricture develops Gray and Holmes (*loc cit*) have observed that not as many people recover after swallowing sulphuric acid as after ingesting hydrochloric acid The selective localisation of the corrosive changes in the lesser curvature and antrum has been demonstrated by Testa (1938, cited by Citron *et al loc cit*) by his animal experiment which duly corroborated the original description of Waldeyer's "magenstrasse" (1908, cited by Citron *et al loc cit*) After feeding dogs with a mixture of caustic soda and barium, he observed that the mixture flowed rapidly along the lesser curvature and accumulated within the antrum, thereby exciting pylorospasm resulting in retention and concentration of the corrosive at this site with the most deleterious effect in this area. The state of fullness of stomach is an important factor in localisation of the lesion in the pyloric antrum as ingestion of corrosives on an empty stomach tends to produce a diffuse lesion. Citron *et al.* (*loc. cit.*) stated that the extent and severity of the chemical insult depend on the corrosive nature, quantity and concentration of the ingested substance and duration of contact with tissue. The case under review developed progressive obstruction starting soon after ingestion of the acid with formation of a very early and complete stricture. The rapidity of pathological process in this case seems to be also due to an additional factor of pre-existing gastritis. Hodgeson (*loc. cit.*) discouraged gastrojejunostomy for the possibility of stomal ulcer and unsuitability of tissue of anastomosis and questioned the advisability of leaving an abnormally scarred and chronically inflamed tissue for fear of a possible malignant change in future and advocated Bilroth I gastrectomy for such cases. However, he mentioned Paul (1951) who, admitted the possibility of such complications, performed gastrojejunostomy in 3 of his cases in view of their poor general condition. Such was the situation in the present case too, for which gastrojejunostomy was performed. In this case the result was excellent.

SUMMARY

A case of stricture of gastric antrum due to ingestion of dilute sulphuric acid without involvement of oesophagus is reported. Obstruction developed rapidly leading to an early and complete stricture. The pathological process was likely to have been expedited by pre-existing gastritis. Gastrojejunostomy under local anaesthesia yielded good results.

ACKNOWLEDGMENT

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2

Prepenile Bifid Scrotum

NAZIR A. WANI*, ZORAWAR S. KALA**
S. K. CHIRVI***, M. S. MISGAR****
B. L. BHAN*****

Transposition of the male external genital organs where scrotum is located anterior to the penis is an uncommon congenital anomaly. Only 23 cases have been reported so far in the world literature (Miller, 1972) since 1923 when Appleby reported the first case of this anomaly. Unilateral transposition of the scrotum has been reported by Adair and Lewis (1960) and Flanagan *et al.* (1961). Usually this condition is associated with other concomitant congenital anomalies. Francis (1940) reported a case in whom there was atresia of the whole of colon and agenesis of the urinary tract. Cases having bifid scrotum along with imperforate anus have been reported by Wilson *et al.* (1965). Kapur and Krishnamurthy (1970) and Miller (*loc. cit.*).

CASE REPORT

An 8-hour-old baby was brought to the hospital with absent anal opening and history of not having passed meconium since birth. There was no history of passage of meconium along with the urine. The baby was, however, accepting feeds without any vomiting.

Examination—The baby weighed 5.5 lbs. There was no cyanosis or jaundice. Clinically there was no detectable abnormality in cardiovascular, respiratory and central nervous systems. There was no anal orifice or dimple in the area, but transposition of the penis was conspicuous. The scrotum was bifid, having testis on each side in its corresponding half. The penis was of normal size and was hanging behind the bifid scrotum (Fig. 1). The shaft, prepuce and the glans were developed.

Treatment—A transverse colostomy was performed to decompress the distended gut, but the patient died 8 hours after the procedure. Autopsy was not done.

DISCUSSION

This condition is found commonly in marsupials (Burkitt, 1961). The presence of this condition in primates is difficult to explain on embryological basis. Spaulding (1921, cited by Campbell and Harrison, 1970) is of opinion that this condition arises because of the arrest of the development of the pars phallica of the urogenital sinus and retardation of the genital tubercle while the labioscrotal swelling continues to grow now anterior to the tubercle. Francis (*loc. cit.*), however, believes that this condition arises because of the absence of the urogeni-

Department of Surgery, Government Medical College, Srinagar, Kashmir
*M.S., Registrar
**M.S., Registrar
***M.B.B.S., Registrar
****M.S., Assistant Professor
*****M.S., M.Ch., Lecturer

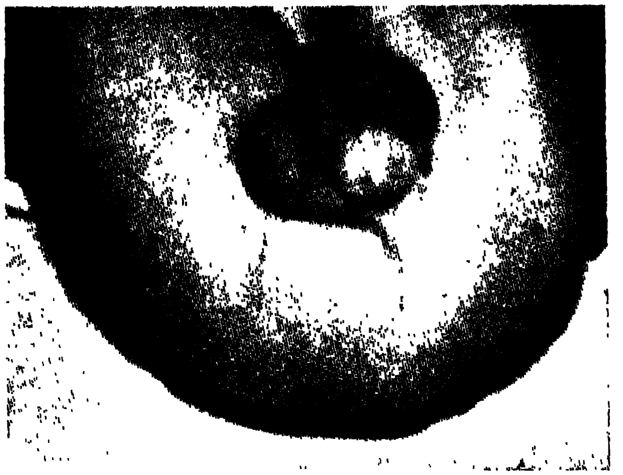

FIG. 1- SHOWING THE PENIS HANGING BEHIND THE BIFID SCROTUM

tal sinus and failure of the scrotal swelling to shift caudally. The case reported here had imperforate anus as the concomitant anomaly and no other internal anomaly could be detected as the patient died suddenly and permission for autopsy could not be obtained.

SUMMARY

An 8-hour-old baby with transposition of the external genitalia associated with imperforate anus is reported. A brief review of the relevant literature is also presented.

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3

Hodgkin's Disease of Small Intestine

M. M. BAGREE*, P. C. KALA**
S. K. VIJAYVARGIYA***

Hodgkin's disease is a form of sarcoma of lymphoid tissue derived from bipotential stem cells. Therefore, though the common sites involved are lymph nodes, spleen and liver, Hodgkin's disease may affect any site that contains lymphoid tissue. The rare sites are breast (Mehrotra *et al.*, 1974), lungs, stomach, intestines and kidney (Anderson, 1969). A case of Hodgkin's disease of small intestine is reported.

CASE REPORT

M. L., a 22-year-old Hindu, male, was admitted in the hospital on 2-2-1977 for chronic pain in abdomen in the umbilical region associated with vomiting, distension of abdomen, more so after meals, and formation of a lump in the abdomen for the preceding 2 years. The patient would be relieved of the symptoms after passing flatus. There was no history of melaena or haematemesis. Past history, family history, and personal history were non-contributory.

Examination—The patient was found to be a young man of average build, poorly nourished, severely anaemic but not jaundiced. Lymph nodes were not palpable in any region. Abdominal examination revealed central distension and tenderness localised in the umbilical region. At times distended loops of small gut were visible. Other systems were normal.

Investigations—Haemoglobin 7 g. per cent, ESR—75 mm. in the 1st hour. Urine examination, fractional test meal and screening of chest were normal. Barium meal examination of stomach, duodenum and follow-through small intestine under screening revealed hold up of barium in jejunum.

Surgery—Exploratory laparotomy was performed when the anaemic state improved following repeated blood transfusions. There were multiple lesions in the ileum, grossly appearing tuberculous but none was severe enough to cause obstruction. There was a big stricture in the upper part of jejunum associated with severe inflammatory reaction causing intestinal obstruction. The gut proximal to it was hypertrophied. Enlarged lymph nodes were also present in this part of mesentery. The stricture was excised with reconstruction by end-to-end anastomosis of gut in 2 layers. Postoperative period was uneventful.

Biopsy report turned out to be Hodgkin's disease of small intestine (Fig. 1, H. & E., X 25; Fig. 2, H. & E., X 160).

FIG. 1—SHOWING DIFFUSE INFILTRATION OF THE MUSCULAR AND SEROSAL COATS WITH PLEOMORPHOUS 'HODGKIN'S TISSUE' AND NECROSIS (N) OF TUMOUR TISSUE IN THE PHOTOMICROGRAPH

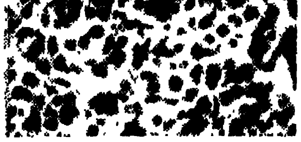

FIG. 2—SHOWING MIXED (LYMPHOCYTE POOR) POLYMORPHOUS HODGKIN'S RETICULAR CELLS ALONG WITH STERNBERG-REED GIANT CELLS (ARROW) IN THE PHOTOMICROGRAPH

Department of Surgery, J. L. N. Medical College, Ajmer
*M.S., Lecturer
**M.S., Reader
***M.B.B.S., House Surgeon

DISCUSSION

Hodgkin's disease of small intestine is not a common entity. McSwain and Beal (1944) reported 20 cases of primary lymphosarcoma of gastro-intestinal tract of which 3 were present in intestine but none was having Hodgkin's disease. Parikh (1975) reviewed 25 cases of primary lymphoma of gastro-intestinal tract but failed to find even one case of Hodgkin's disease. In an extensive review of primary lymphomas of gastro-intestinal tract over a period of 37 years, Loehr *et al.* (1969) were able to find 100 cases; of these 100 cases, stomach alone was the site in 63 cases and in the remaining 37 the lesions were distributed all over the rest of gastro-intestinal tract. Of these 100 cases of lymphoma, 10 were of Hodgkin's disease, 4 of small intestine and 6 of stomach. Isolated cases of Hodgkin's disease of stomach have been reported by others also (Kline and Goldstein, 1973; Hirama, 1974).

The present case of Hodgkin's disease of small intestine, which manifested as subacute intestinal obstruction, clinically diagnosed as tuberculosis of intestine, proved to be Hodgkin's disease of small intestine on histopathological examination.

SUMMARY

A case of Hodgkin's disease of small intestine with a review of literature on the subject has been presented.

ACKNOWLEDGMENT

The authors are thankful to the Principal, J. L. N. Medical College, Ajmer for allowing them to publish this case report.

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4

Oral Submucous Fibrosis

T. H. MODI*

Oral submucous fibrosis is the involvement of oral cavity with fibrosis of submucosa. Two such cases are presented.

CASE REPORTS

CASE 1:

H., a 30-year-old male, first noticed burning on eating hillies about 3 years back. There was no history of taking highly seasoned food nor a habit of betel nut chewing.

Examinaion—Physical examination at that time revealed few shallow ulcers over the anterior half of tongue and mucosa of the inner lips. These were superimposed over whitish pearly background of fibrotic tissue. He did not have ny clinical evidence of any nutritional deficiency. Gum, teeth, tonsil, and sinuses were normal. There was no evidence of scleroderma. There was no leukoplakia.

Investigations—Haemoglobin, WBC count and ESR were within normal limits. Biopsy could not be done.

Treatment—Therapy with vitamins and minerals did not produce any improvement. Steroids were not given.

Progress—The fibrosis continued to extend and now after 2 years it has involved the anterior pillar of fauces, soft palate, uvula, and inner margin of lips. The patient is now unable to open mouth fully.

CASE 2:

B, a 40-year-old male, presented with inability to open mouth fully for the last 2 years. There was a history of taking highly seasoned foods and also chewing betel nuts. However he had to give up these habits for the last 2 years.

Examination—The patient had a white glistening surface over a shortened soft palate. The uvula was levelled off due to fibrosis. Anterior part of the oral cavity was not affected. He did not have nasal voice nor nasal regurgitation. There was no leukoplakia. Gum, teeth, sinuses and tonsils were normal. There was no evidence of any systemic illness like scleroderma, nor any stigmata of any nutritional deficiency.

Treatment—He was treated with local infiltration of steroids every week for 8 weeks. Systemic steroids, vitamins and minerals were also given.

Progress—He did not improve and had no change after a follow-up of 2 years.

DISCUSSION

These 2 cases are described to show the clinical presentation of oral submucous fibrosis. The disease was first brought to notice by Joshi (1952) and has been subsequently fully investigated by a number of workers (De Sa, 1957; Sharan, 1959; Sirsat and Khanolkar, 1960, 1962; Rao, 1962; Abrol, 1977). An inflammatory reaction occurs in the oral mucosa which is subsequently followed by healing and fibrosis, often to such an extent that the patient cannot open the mouth fully. The soft palate and anterior pillars of fauces are involved most. Ulcers over tongue and inner margin of lips followed by fibrosis in these regions, along with fibrosis over palate and anterior pillars of fauces are not common.

The cause of the condition is not known although it has been attributed to use of highly seasoned foods and betel nut chewing. The process of autoimmunity has neither been ruled out nor confirmed. The disease should be differentiated from scleroderma and malignant lesions of the oral cavity. Association with oral carcinoma has been noted in some cases (Abrol, *loc. cit.*).

SUMMARY

Two cases of oral submucous fibrosis are reported.

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*M.D. (Med.), F.I.C.A. (USA), Consultant Physician d Cardiologist, Burhanpur, M.P.

JOURNAL OF THE
INDIAN MEDICAL ASSOCIATION
CALCUTTA, SEPTEMBER 16, 1978

IMA Marches on to Golden Jubilee Year

A hundred years is a good life-span for an individual and a good land-mark in the history of a nation. It is an equally good period for an organisation indicative of its capacity to survive and justify its existence. But no less important is the middle of this period when a man attains a dependable maturity of mind, a nation matures into a strong people through struggle and an organisation matures into its national status by dint of its service. This golden period attained by each is also the time for consolidation, re-dedication, mid-course correction, if any, and also for jubilation. Hence the Golden Jubilee celebration of IMA.

In the pre-Independence days the medical profession of our country felt the need for an Association to protect the interests of promotion of medical sciences in terms of national welfare and health of the country. Attempts at organising the whole profession of the country with an urge to free themselves from the stranglehold of alien domination, manifested in the form of four annual All-India Medical Conferences held between 1917 and 1920. Due to the constraints under which the freedom-loving doctors had to work during the period, there was a lull in their activity till 1928.

Further provocations by the British Government by way of non-recognition of medical degrees of Indian universities spurred a brilliant batch of pioneers like Sir Nilratan Sircar, Dr. B. C. Roy, Dr. G. V. Deshmukh and Dr. Jivraj Mehta to re-organise the medical profession and hold the historic Conference at Calcutta on 28th December 1928 when on the strength of a unanimous resolution the Association was born and christened as All India Medical Association.

Subsequently in 1930 the All India Medical Association was renamed the INDIAN MEDICAL ASSOCIATION. Since then the Association gradually worked up its way to the heart of the countrymen along a path of service by consistently demanding extension of health care service for the Indian people and by supplementing the meagre relief measures of the Government with its own resources whenever there were national exigencies and natural calamities like earthquakes, floods and famines.

In January 1949 the Central Office of IMA was shifted from Calcutta to Delhi by virtue of the decision of the Central Council. With the expansion of its activities on the all-India plane the problem for a suitable accommodation for the national headquarters became acute. In September 1958 the foundation stone for IMA House was laid at Indraprastha Marg, New Delhi and the Central Office was at last housed in the Association's own building in September 1964. The Journal of the Association, however, continued to be published from Calcutta and catered to its members' need for keeping abreast of the advancements in modern medicine.

With the dawn of Independence, the Indian Medical Association attained a new status and dignity as the national organisation of medicalmen quualified in modern scientific system of medicine. It was about this time that in response to a call for medical help received from the President of Indonesia through the Government of India, the Association promptly sent out a medical mission which brought laurels to our country.

During the two wars of 1961 and 1964, which were forced upon the country, the Association stood by the Government in supplementing the national defence efforts by collecting men, money and material in addition to blood donations and free service to the families of the soldiers.

In normal times hundreds of branches of IMA devote themselves to community health work, through school health examination, mass immunisation campaign, mass inoculation drive, sinking of tube wells, etc., besides participating in various official programmes for eradication of communicable diseases. As responsible citizens of the country the members of IMA involve themselves in educating the public, particularly the rural masses, in the scientific ways of healthful living. Towards this end two lay journals, '*Your Health*' in English and '*Apka Swasthya*' in Hindi are being brought out as official publications of the Association.

Our Association is very much concerned with the addition of 'a million a month' to the population of our country. We have initiated every member of the profession into the strategy of motivation and implementation of family welfare planning methods within the meagre resources of a voluntary organisation. We find, however, with regret that the avowed policy of the Government to involve voluntary organisations in the Family Welfare Programme does not match with the executive actions at the delivery points in the States. The potentiality of IMA's active involvement in this programme has not been properly assessed by the Government. Given the necessary inputs we can still assure the Government that it shall not be beyond our means to achieve the desired targets within the prescribed time.

The Association has placed before the country from time to time its concrete suggestions regarding the total health care of the people. It has elicited the considered views of health experts, health administrators, medical scientists and medical educationists on the major problems of health and medical care and has published valuable documents on the future pattern of rural medical care for this country. Though the Association has always tried to involve the participation of Central and State Health Ministers at its All-India and State Medical Conferences, it is distressing to note that the Planning Commission never found it necessary to consult the profession regarding the formulation of a full-fledged health policy for the nation. Instead, successive Governments put forward from time to time schemes which rather suited the diverse

CHRONOLOGY OF EVENTS LEADING TO FORMATION OF IMA

The name "Indian Medical Association" was used originally in 1895 by an all-India body of medicalmen having its headquarters at Calcutta and (Roybahadur) Dr. Lal Madhab Mukherjee and Dr. J. R. Wallace as its President and Secretary respectively.

The first All-India Medical Conference was held in 1917 at the initiative of the then Bengal Medical Association at the Carmaichael (now R. G. Kar) Medical College, Calcutta. Lt. Col. Raghavendra Roy was President of the Conference and Sir Nilratan Sircar was the Chairman of the Reception Committee.

The second All-India Medical Conference was held in July 1918 under the presidency of Sir Nilratan Sircar and with Dr. J. K. Sen as Chairman of the Reception Committee.

The third All-India Medical Conference was held at Amritsar in 1919 under the presidency of Dr. M. N. Odhedar.

The fourth All-India Medical Conference was held at Nagpur in 1920 under the presidency of (Roybahadur) Dr. Maharaja Kissen Kapoor with Dr. G. R. Tambe as the Chairman of the Reception Committee.

The fourth conference was followed by a period of apparent lull, which was in reality a period of preparation, for 8 years. It was marked by significant developments like i) the decision of the General Medical Council of UK to withdraw recognition of certain medical degrees conferred by Indian universities, ii) the report of the committee presided over by Sir Walter Fletcher on the organisation of medical research in India and iii) the Government's proposal to set up a more or less officially controlled All-India Medical Council.

A meeting of the members of the medical profession was held on 30th July, 1928 under the auspices of the Bengal Medical Association. Dr. Sundari Mohan Das took the chair and the meeting discussed the various urgent issues affecting the Indian medical profession.

Another meeting of the medical profession of Calcutta and its suburbs was held under the auspices of the BMA on 30th August, 1928, when it was decided to hold the *5th All-India Medical Conference at the National Medical Institute, Calcutta, during the Christmas week of 1928.*

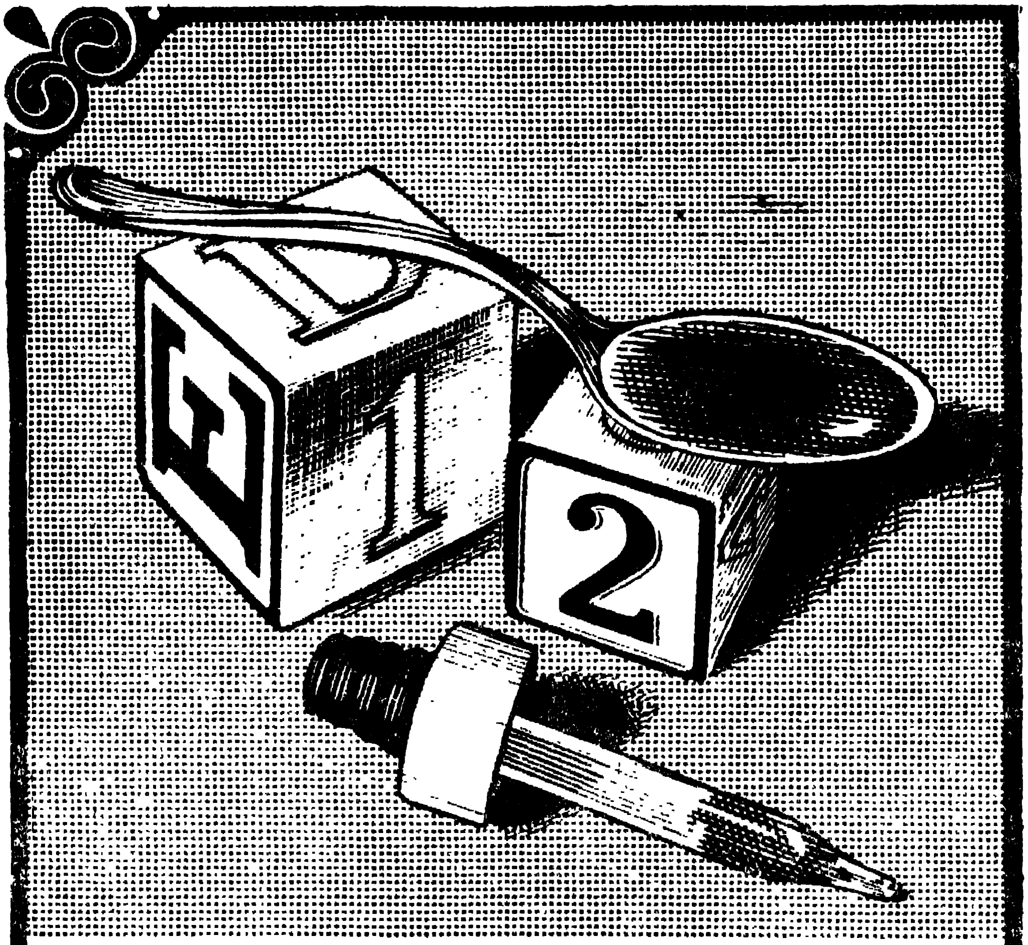
Dr. J. V. Deshmukh of Bombay presided over this 5th All-India Medical Conference, while Sir Nilratan Sircar was the Chairman of the Reception Committee. In course of a statement issued to the press by several leading medicalmen on the eve of this conference it was stated: "The medical profession on account of its disorganised condition is unable at the present moment to exert that influence which is its duty and its privilege to exercise. It has its duties towards the profession as well as towards the public and it must take its rightful place in shaping public opinion and guiding it in the administration in a manner similar to that enjoyed by the medical profession of other countries".

Having thus keenly felt the urgent need for organising the profession the conference adopted on 28th December 1928 at the National Medical Institute, Calcutta, the following resolution which was moved from the chair and passed unanimously: "Resolved that an All India Medical Association be formed with the objective of looking after the interest of medical education, public health and the medical profession in India and that this body be duly registered under Act. 21 of 1860."

A provisional committee was elected with the following: President– Dr. G. V. Deshmukh; Vice-Presidents- Sir Nilratan Sircar and Dr. B. C. Roy; Secretaries—Dr. Kumud Sankar Roy, Dr. Aghore Nath Ghosh and Dr. D. D. Sathaye; Hony. Treasurer—Dr. J. N. Moitra. Fifteen other eminent medicalmen from different corners of undivided India were taken in the committee as members.

In 1930 the All India Medical Association was renamed as Indian Medical Association. Since then the All-India Medical Conferences-- the annual all-India sessions of IMA, have usually been held in the month of December, while the Association year begins on the first of October every year.

(Based on 'The IMA in the Pre-Independence Years' by Dr. P. K. Guha, Ex-Hony. Editor, *J. Indian M.A.* **61**: 459, 1973)



kinder to the child who needs an antibiotic– more considerate of the mother who must give it

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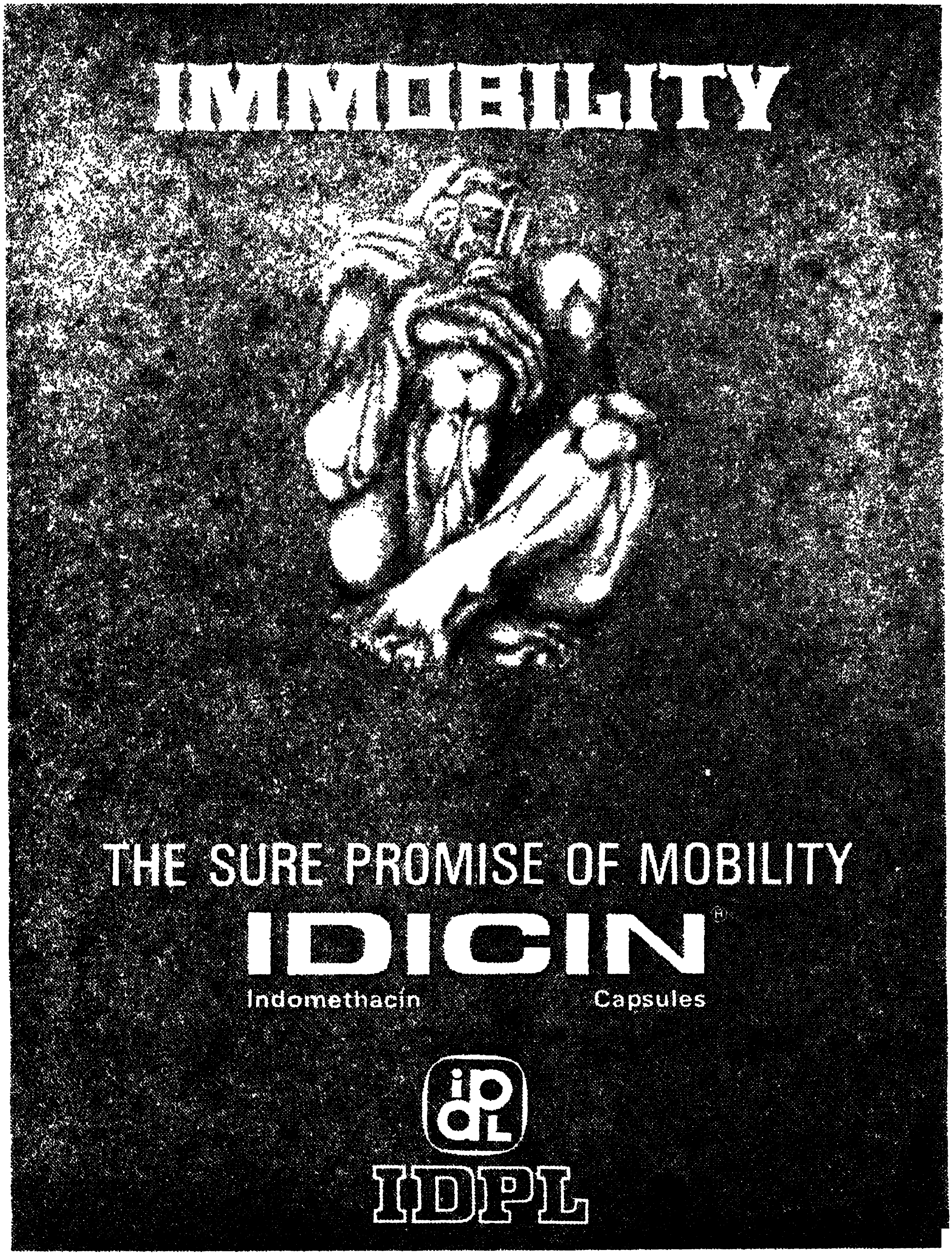

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fancies and philosophies of different personalities. A firm decision on framing a health policy of the country in consultation with the profession could have avoided future difficulties and disasters in the sphere of the nation's health. The IMA has the firm conviction that total involvement and utilisation of the total medical manpower of the country alone could ensure a comprehensive health care for the people of a vast country like ours.

The Association, representing as it does all sections of qualified practitioners of modern medicine, safeguards the interests of every category of members be they in service under the Government, the corporate, the public or the private sectors of industry or be they self-employed. The Association is equally concerned with the future of the young doctors and medical students who are the doctors of tomorrow. We have a close liaison with the Medical Council of India which looks after the upkeep of the standard of medical education and the ethics and discipline in the practice of medicine in our country. We also take care of the continuing education of members and try to help doctors to keep themselves abreast of the progress in modern medicine so that we can serve the community ever better.

Medicine is one of the most disciplined of all the professions both by virtue of the tradition and the training involved. But the environmental turmoils in the country have an eroding and demoralising effect even on the code of conduct expected of this discipline. It is up to the leaders of the people to utilise the medical profession in the service of the nation without involving it in unhealthy political rancours. In the event of a deliberate dereliction of duty or unethical conduct on the part of any member of the profession, the Association is ever willing and ready to bring the delinquent to book, if, of course, it is vested with certain statutory powers as possessed by similar national medical organisations in the developed countries.

In this happy year of the Golden Jubilee of the Association we recall with reverence and gratitude all those who shaped the destiny of our Association in the past. We cherish with pride the service of all those who are working for the advancement of the Association. We extend with zeal and earnestness our hearty welcome along with our best wishes to the doctors of tomorrow who, we believe, would come forward with newer ideas to enhance the image of the profession and fulfil their obligations to the country. Let the past, present and future detachments of the medical profession sing in unison: *Long Live Indian Medical Association.*

J. V. R. SARMA

NOTES AND NEWS

Week-end Course on Basic Medical Science

A three months' week-end course for postgraduate students starting from 21st October 1978 on Basic Medical Science will be held in Calcutta under the auspices of the West Bengal Chapter of the National Academy of Medical Sciences. The last date for submission of application is *7th October 1978.* Detailed information may be had from Dr. N. N. Roy Choudhury, Hony. Secretary, W.B. Chapter, NAMS, 4 Chowringhee Terrace, Calcutta-700 020.

XVI National Conference of Indian Academy of Pediatrics

The 16th National Conference of the Indian Academy of Pediatrics will be held at the Oberoi Grand Hotel, Calcutta, on January 3 –6, 1979. The conference will be preceded by a programme on continuity in pediatric education for post-graduates and others on January 2. Further particulars may be had from Dr. G. K. Mehrotra, Organising Secretary, XVI National Conference of the Indian Academy of Pediatrics, Institute of Child Health, 11, Dr. Biresh Guha Street, Calcutta-700017.

Research Society for Study of Diabetes in India

The 6th annual conference of the society will be held in Madras on January 17, 1979. The main theme is 'Diabetes in the young as it occurs in neonatal, infantile and juvenile life till the age of 40 years'. The other features include free papers, guest lectures and a brains trust besides an exhibition of prepared and cooked foods for young diabetics. Detailed information may be had from Prof. M. Vishwanathan, Diabetes Research Centre, 52 Main Road, Royapuram, Madras 600 013 or Prof. Sam G.P. Moses, 'The Ark', 22-A Casa Major Road, Egmore, Madras 600 008. Abstracts for papers on the main theme should be sent in duplicate to Dr. Vinod Kumar at the address of the Society (Department of Medicine, AIIMS, New Delhi 110016) by *15th November 1978.*

CORRESPONDENCE

The Editor is not responsible for the views expressed by correspondents

Femoral Venous Infusion

SIR,—Situations sometimes arise when intravenous fluid therapy becomes a must for patients But it may so happen that, "closed" infusion is an absurdity and at the same time open "cut down" is a wrong decision. Under such circumstances, "femoral venous infusion" could be the only answer This method offers the simplicity of closed venous infusion along with the advantages of open venous method obviating the well-known drawbacks of both. That apart, this has something unique of its own; it is the widest possible vein for infusion therapy and being closer to heart, far from the occurrence of venous thrombosis, which is so common in othe sites. And that way no one vein can be more "ideal" for parenteral infusion. About its hazards -plenty in theory but only a few in practice. This method is universally applicable i all ages and in both sexes

Only a few simple things are required: One piece of IV catheter (dripcath/intracath), small/medium as needed, one 10 ml. sterile glass syringe, a pair of sterile gloves, local sterilising set and sterile drapings along with a little attentive mind.

The set is made air-free and the catheter base is fixed to the adapter and kept aside aseptically.

The patients' right thigh is chosen. He lies supine and antiseptic painting is applied over the upper 1/3rd of the thigh, inguinal region (with special attention to genitalia) and lower part of abdomen close to the inguinal ligament. Antiseptic draping may or may not be used.

Now the operator puts on the gloves; places his left hand finger tips to locate the highest part of femoral arterial pulsation near the inguinal ligament and then comes down over it up to a point 1"-1½" down, thus covering the entire breadth of pulsation and his right hand pushes the drip catheter needle fitted to the glass syringe firmly, the tip of the needle being directed a bit medially to avoid injury to the artery and with a slight tilt towards thigh surface till it encounters a bony resistance beneath. Now on starting withdrawing the needle slowly, maintaining a steady pull on the plunger, blood is seen flowing into the syringe indicating femoral venous puncture. To make this point certain, the withdrawn blood is pushed again and any swelling is looked for. If there is none—the needle is in its correct position. The syringe is then separated carefully; pattern of blood flow through the needle is observed to differentiate arterial from venous puncture and then the catheter is introduced through the needle as far as possible, even with manipulation of needle if necessary. The catheter base is fixed to the thigh with sticking plaster. Fluid is allowed to run in a jet or in trickle, as required.

In case of inadvertent arterial puncture, one is to make sure about perfect haemostasis.

If anything unfortunate like femoral arterial spasm happens, it would have to be dealt with accordingly, adequately and quickly. In restless patients, hands and feet may have to be tied.

The demerits, as found in conventional methods e.g., venous thrombosis, local sepsis, etc., are surprisingly occasional and in a much milder form. Another unique feature of this method is that one can have repeated access to patients' blood which might be required for continuous biochemical monitoring or for other important purposes. This method has been used on patients and is being used now. So a plea is made to members of the medical profession to give it a fair trial which it merits on its own.

I am, etc.,

Medical College and
Hospitals, Calcutta.

SUBRATA DUTTA, M.B.B.S. (Cal.),
Senior House Physician,
Department of Medicine.

REVIEWS

Population Change — A Strategy for Physicians—Edited by Lucille S. Bloch, Association of American Medical Colleges, Washington D.C., USA, 23.2 cm. × 15.5 cm., pp. 271, $3.00

The proceedings of the international conference on the physician and population change, held in Stockholm in September 1974 was published under the above title. The conference was sponsored by the World Medical Association, the World Federation for Medical Education, the International Planned Parenthood Federation, and the World Health Organization.

A total of 16 papers was presented at the conference in addition to a foreword by Dr. Henry Van Zile Hyde, an introduction by Sir William Refshauge, the Keynote address by Dr. Jose Felix Patino, the closing address by Dr. Leo A. Kaprio and a summing up by Dr. Carl E. Taylor.

The book is divided into four parts: (1) Medicine and Demography, (2) Family Health, Family Planning and Factors affecting Fertility, (3) the Role and Attitudes of Physicians, and (4) the Role of Medical Associations and Medical Education Institutions in Population Change.

One of the most difficult things about reviewing a collection of papers is deciding on a set of criteria for evaluating each paper. Instead of going through that long arduous task, the review takes a general view about the objectives of the conference.

The reader could approach this book in two ways. As a physician he could use it as a means to obtain knowledge about the population and related problems from the standpoint of a physician and the role (undefined) he could play for the solution of this global problem as suggested in "A strategy for action". To a layman these deliberations from medical people will be of immense value, since they (doctors) are thinking in terms of attitude change and accepting a wider role in population control programme. Doctors' perceptions of their role in family planning differ widely. These conferences will prove effective only if some consensus is established about the changing role of a doctor in population change programme.

It would seem that a reader who wants to get an overview of the population problem and the physician's role need not go through the entire collection. The summing up and the strategy for action would suffice for this purpose.

The reader is not aware of any follow-up programme to be pursued by different countries to make the role of doctors meaningful in health—population- -development triad. A new awareness in physicians is urgently needed so that he may adjust and adopt his traditional role to accommodate the needs of the people.

A. SEN GUPTA

Basic Radiation Biology—By Donald J. Pizzarello and Richard L. Witcofski, 2nd ed. 1975, Lea and Febiger, Philadelphia, 25.5 cm. × 18.2 cm., pp. ix+143, $ 11.75.

This concise monogram deals with radiation biology in almost all its aspects. The approach, in general, is more descriptive than mathematical and is ideally suitable for beginners having interest in radiation biology. The illustrations sited are simple and the references are pertinent, up to date and exact. The total subject has been covered in 18 chapters, of which 7 have been devoted to physical aspects and the rest on radiobiology proper. Some very useful informations have been incorporated at the end of the text in the form of appendices on 'Measurement of Radiation Dose' and 'Irradiation Techniques with External Sources of X and gamma rays'.

In short, a wide range of information has been put into this incredibly small concise book. It also includes within this short space those technical features which are practical and important. Greatly condensed information perhaps has at times made it taxing for the readers to conceive what is described in the text. Also for those not thoroughly versed with the subject, in absence of adequate illustrations it has became difficult to appreciate the wealth of informations presented to them.

Despite these minor discrepancies this small yet surprisingly complete textbook should find wide appeal amongst readers.

BIJON ROY

Books Received for Review

(Up to 15th September 1978)

Comprehensive Virology, Vol. 7, Reproduction: Bacterial DNA Viruses, pp. XII+ 300, $25.00; **Vol. 8,** Regulation and Genetics: Bacterial DNA Viruses, pp. XII+ 350, $29.50; Eds., Heinz Fraenkel-Conrat and Robert R. Wagner, 1977 Plenum, New York and London.

Contemporary Topics in Immunobiology, Vol. 6, Immunobiology of Oncogenic Viruses, Eds., Michael G. Hanna and Fred Rapp, 1977, Plenum, New York and London, pp. XIII+289, $27.50.

Mode Problems in Ophthalmology, Vol. 18, Turning Points in Retinal Surgery, Vol. Eds., E.W.D. Norton, R. Dufour, C Gailloud and D. B. Daicker; Ser. Ed., E. B. Streiff, 1977, S. Karger, Basel, pp. XVI+545. S Fr./DM 245, US $94.50.

The Practitioner's Guide to Psychoactive Drugs Ellen L. Bassuk and Stephen C. Schoonover, 1977, Plenum, New York and London, pp. XXVII+331, $19.95.

Renal Medicine (Concise Medical Textbooks)- Roger Gabriel, 1977, Bailliere Tindall, London, pp. VII+280, £3.50.

Gastroenterology (Concise Medical Textbooks)—I.A.D Bouchier, 2nd ed., 1977, Bailliere Tindall, London, pp. X+374, £4.50.

Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death, Vol. 1., International Classification of Diseases, 1975, Revision—1977, WHO, Geneva, pp. XXXIII + 773, S. Fr. 30, US $12.00.

Intercellular Communication- Ed , Walmor C. De Mello, 1977, Plenum, New York and London, pp. XIII + 255.

Dyserythropoiesis -Ed., S. M. Lewis and R. L. Verwighen, 1977, Academic Press, London, New York, and San Francisco, pp. XI + 350, £ 11.80, $23.00.

Bronchial Asthma in General Practice with the Latest Researches in Asthma -J. R. Goyal, Indian Heritage, Delhi, pp. 112, Rs. 15.00.

Patients and Their Hospitals: A Survey of Patients' Views of Life in General Hospitals—Wilfred Raphael, 3rd ed., 1977, King Edward's Hospital Fund, London, pp. 46, £3.75.

Psychiatric Hospitals Viewed by Their Patients—Wilfred Raphael, 1977, King Edward's Hospital Fund, London, pp. 50, £ 3.75.

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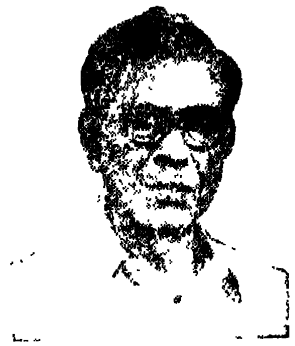
OBITUARIES

Dr. K. Verma

Dr. Kaushalendra Verma, a member of the Bahraich Branch of IMA in Uttar Pradesh passed away on 22-3-1978. Born on 13-8-1935 at Sultanpur Dr. Verma graduated from Allahabad University and passed M.B.B.S. Examination from S. N. Medical College, Agra in 1962. He shortly joined the Government service, but resigned the same in 1968 to start private practice. An active member of IMA he was elected the Secretary of the local branch for 1972-73, Vice-President for 1973-74 and President for 1974-75 He was also associated with the local Rotary Club.

DR. K. VERMA



DR. J. SARMA

Dr. Jyotirmoy Sarma

Dr. Jyotirmoy Sarma, a member of the Calcutta Branch of IMA, passed away on 6-8-1978. Born in 1903 Dr. Sarma, who hailed from Malda in North Bengal, qualified as an L.M.F. from the National Medical School, Calcutta in 1943. A freedom fighter since his youth Dr. Sarma twice suffered imprisonment. Later he was drawn to Marxist ideology and was jailed in 1948 following the ban on Communist Party at that time. As a member of IMA's delegation he visited different countries of Europe including USSR and East Germany. He was a founder-member of Pavlov Institute of Calcutta.

Dr. Binoy Chowdhury

Dr. Binoy Chowdhury, a member of the Calcutta Branch of IMA and an eminent urologist, passed away on 24-5-1978. Born on 7-11-1929 Dr. Chowdhury graduated in medicine from R. G. Kar medical College, Calcutta and went to USA for higher training in urology. He was a Potts Memorial Fellow and also received the Van Memorial Fellowship for work on cancer chemotherapy. On coming back to Calcutta in 1963 he joined the Ramkrishna Mission Seva Pratisthan as consultant urologist. Later he joined the Calcutta Hospital and Medical Research Institute and became the Chief of the department of urology. Besides making important contributions in the field of renal tuberculosis, endoscopic surgery and cancer he was also President-elect of the Urological Society of India. Dr. Chowdhury leaves behind his wife Dr. Jaya Chowdhury, a plastic surgeon.

DR BINOY CHOWDHURY

DR. M. A. PATEL

Dr. Manibhai A. Patel

Death took place on 21-7-1978 of Dr. Manibhai Ashabhai Patel, a distinguished member of the Baroda Branch of IMA, following a massive heart attack. Born on 21-3-1917 Dr. Patel, who passed the M.B.B.S. Examination in 1940, qualified as an M.D. in 1946 and obtained a double F.R.C.S. from England and Scotland in 1949. Coming back to Baroda he set up a modern nursing home in the city and shortly established himself as a leading surgeon. Dr. Patel also devoted himself to building up the surgical department of Baroda Medical College and earned a wide reputation as a medical teacher. He carried on postgraduate teaching in anatomy and surgery at the M.S. University till the closing days of his life. He was an elected member of the Senate and Syndicate of the University and was also a visiting Professor to a number of medical colleges in and outside Gujarat. He was intimately connected with the Rotary Club of Baroda. He leaves behind his wife, 2 sons and 3 daughters.

Dr. Parimal Sarkar

Dr. Parimal Sarkar, a member of North Howrah Branch of IMA in West Bengal, passed away on 27-11-1977 after a prolonged illness. Born in 1903 Dr. Sarkar graduated in medicine from Carmaichael (now R. G. Kar) Medical College, Calcutta, in 1932 and started private practice at Salkia, Howrah. Later he qualified for D.T.M. from the School of Tropical Medicine, Calcutta. He was appointed Chief Casualty Officer in the ARP organisation of Howrah during the 2nd World War and was assigned the same responsibility during the Chinese aggression. He was a founder and Vice-President of the ESI Medical Association, West Bengal and President of Howrah Medical Club. He donated his chamber to enable the North Howrah Branch to run an immunisation centre. Dr. Sarkar leaves behind his wife and 3 sons.

DR. P SARKAR

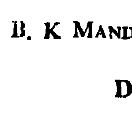
DR. G. D. TANEJA

Dr. G. D. Taneja

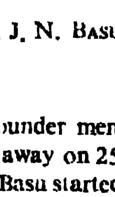
Dr. Govind Dev Taneja, a member of the Bareilly Branch of IMA in Uttar Pradesh, passed away on 20-7-1978. Born in 1915 Dr. Taneja qualified for the profession from Amritsar Medical School in 1937 and joined the Railways as a medical officer. Before he retired from service in 1973 he was Additional Divisional Medical Officer. Dr. Taneja was an active rotarian and was closely associated with the Arya Samaj. Orphanage and Leprosy Home and several educational institutions. An active member of IMA he held many important posts in the organisation including Vice-Presidentship of the U.P. State Branch for a term.

Dr. B. K. Mandal

Dr. Bijan Kumar Mandal, a member of the Burdwan Branch of IMA, passed away on 17-4-1978. Born on 7-12-1899 Dr. Mandal qualified for the profession in 1925, being one of the first batch of the students to come out from Ronaldsay Medical Institute, Burdwan. Starting private practice at Rampur, a village in Burdwan district, he earned fame as a rural medical practitioner during his long 53 years of practice in the rural areas of the two neighbouring districts--Burdwan and Bankura. A staunch supporter of the freedom movement he incurred the wrath of the British rulers for giving refuge to many absconding freedom fighters. He was also associated with several local social and medical institutions. Dr. Mandal is survived by his wife, 5 sons-- the eldest being a doctor and 7 daughters.



DR. B. K MANDAL



DR. J. N. BASU

Dr. Jatindra Nath Basu

Dr. Jatindra Nath Basu, one of the founder members of North Howrah Branch of IMA, passed away on 25-4-1978 following a heart attack. Born in 1905 Dr. Basu started private practice at Belur after graduating in medicine. He was closely associated with the Ramkrishna Mission, Belur Math, both as a devotee and as a doctor. Besides being a Commissoiner of the Bally Municipality he was attached to Belur Public Library, Belur High School and several other local welfare organisations. He leaves behind his wife, 2 sons and only daughter.

SUPPLEMENT

VOL. 71, NO. 6 : CALCUTTA : SEPTEMBER 16, 1978

Association Notes

IMA President Appeals for Relief to Flood Victims

The President of IMA Dr. J. V. R. Sarma has made the following appeal to all Local Branches of IMA:

There have been unprecedented floods in the States of UP, Bihar and Bengal in recent months. The zenith of havoc has been reached in Bengal State where, in addition to the city of Calcutta. almost all the districts of the State have reported heavy damage of standing crops, property and life. It is also reported that some of the members of the medical profession have personally suffered and have been professionally disturbed.

It is the duty of every member of the national organisation to render help to the displaced and the ailing people and the distressed brethren of the profession. I appeal to all Local Branches of IMA to collect medicines, clothing and money to be pooled at their State Branch office for onward transmission to Bengal State Branch. Prompt action is the proper need of the hour

IMA President's Tour

The President of IMA. Dr. J. V. R. Sarma, was present at Delhi from 11th to 14th August, 1978. On 12-8-78 he presided over the inaugural session of the workshop seminar of IMA College of General Practitioners and conducted the sessions No. 1 to 4 of the seminar on that day. On the following day he met the Prime Minister of India at the latter's residence and later attended a meeting of the Delhi Medical Association at DMA Building and a meeting of the Governing Council of IMA College of GPs. He was also present at the sessions No. 5 to 8 of the workshop seminar of the College which continued on the day.

On 14-8-78 the President attended a meeting of the Secretaries of IMA at the Headquarters and later inaugurated the Delhi Chapter of IMA Academy of Specialities. The President left Delhi on the same day to be present at Calcutta on 15-8-78 for inaugurating the conference of Local Branch Secretaries of IMA in West Bengal. In the afternoon he attended a meeting of the Journal Committee of IMA and discussed the affairs of the Journal. He left for Hyderabad the next day.

At Hyderabad the President received on 21-8-78 Dr. G. P. Dutta, Associate Editor of JIMA and on 23-8-78 inaugurated the observance of the Demands Day at Falaaluknama.

The President arrived at Pimpri, Poona, on 26-8-78. In the morning he inaugurated a seminar on Selection of Prospective Drugs at the Hindusthan Antibiotics Ltd. and later went round the factory. In the afternoon he presided over a session of the seminar before he left Pimpri for Bombay by car. At Bombay he met a delegation of the West Suburban Branch of IMA. The President was back to Delhi on 27-8-78 to attend a meeting of the Academic Advisory Committee of IMA College of GPs and another meeting of working groups of IMA Academy of Specialities. In the afternoon he presided over the debate on 'Demand for National Health Policy' which was held at the IMA House. On the following day the President met the office-bearers of IMA at the Headquarters and discussed the preparations for the Golden Jubilee Celebration. After attending a meeting of the Academic Council of IMA College of GPs in the afternoon the President left for Hyderabad.

Branch Notes

ANDHRA PRADESH STATE BRANCH

Razole Branch—The branch organised a free medical check-up camp at Bisavaram village in cooperation with the NSS Unit of Government College, Razole, on 16-10-77. A total of 200 patients including women and children was examined and treated by Drs. K. Sitaram Rao, (Miss) A. Rajkumari and B. Venuswami under the leadership of the President of the branch, Dr. B. Janakirama Rao.

A refresher course, the second of its kind, was organised on 30-10-77 under the joint auspices of AP State Faculty of IMA College of GPs and the branch. 63 members participated. The course was inaugurated by Dr. A. Perisastri, immediate past President of the State Branch. Dr. B. Janakirama Rao presided. The unique feature of this course was that speakers were selected from non-teaching members of the profession who gave out their varied experiences and practical suggestions which raised enthusiastic queries and discussion. The speakers included Drs K. Gopala Rao, D. V. S. Suryaprakasa Rao, K. Balakoteswara Rao, S. Veerabhadra Rao, P. Krishnam Raju and B. Raghavendra Rao. Earlier Dr. A. V. Appa Rao, Hony. Secretary presented a brief report and Dr. B. Veeraswamy. Jt. Secretary, read out the messages. Dr. K. Prabhakar thanked the speakers, the participants and the guests.

A 2-day dental camp was also opened on 30-10-77. A number of distinguished dental surgeons including Dr. C. Krishnarjuna Rao and Dr. M. Ramaswamy, both from Guntur Medical College and leading citizens including Sri B Gopalakrishna Rao, MLA, were present on the occasion. The camp was inaugurated by Sri Rao and voluntary services was provided by Satya Sai Seva Dal, Boys' High School and NSS. Razole. The number of cases examined in the camp was 1200 including 630 school children. The number of dental extractions totalled 425. Dr. C. R. K. Dinakar took a leading part in organising the camp.

ASSAM STATE BRANCH

Sibsagar Branch—The annual meeting was held on 7-8-77 at the Sibsagar Civil Hospital with Dr. G. Talukdar in the chair. 33 members were present. The following were elected office-bearers for 1977-78: President—Dr. B. N. Sarmah; Vice-President—Dr. A. Gatphoh; Hony. Secretary Dr. M. M. Hussain; Jt. Secretary—Dr. B. B. Boruah; Member of Central Council Dr. M. M. Hussain

BENGAL STATE BRANCH

Alambazar Branch—The annual general meeting was held on 6-9-77. Placing his report the Hony Secretary, Dr Ramdas Banerjee informed the house that the branch held 12 general meetings and 2 clinical meetings during the year. During the observance of health week on the theme 'Foresight prevents blindness' the members examined the eyesight of about 200 school children and checked up the health of 150 babies present on the occasion of the baby shows. The branch organised a relief camp for the distressed people of the waterlogged colonies of Baranagar from 10th to 15 August 1977. The following were elected office-bearers for 1977-78: President—Dr. N. Burman; Vice-Presidents -Dr. (Miss) P. Roy and Dr. Sankar Prosad Som; Hony. Secretary—Dr. Ramdas Banerjee; Asst. Secretary—Dr. C. R. Basak; Treasurer—Dr. (Mrs.) Manju Roy; Members of State Council—Dr. Chitta Niranjan Sen and Dr. Sailendra Bijoy Ghatak; Member of Central Council—Dr. Amal Chandra Dhar.

Bally-Belur-Lilooah Branch—At the annual general meeting held on 30-10-77 the following were elected office-bearers for 1977-78; President—Dr. Kanailall Mukherjee; Vice-Presidents—Drs. Netai Chand Ghose, Niranjan Banerjee and Bijoy Kumar Sen; Hony. Secretary—Dr. Shib Narayan Chatterjee; Jt. Secretaries—Drs. Sital Prosad Chatterjee, Dilip Kumar Kundu and Dharani Kanta Ghosh; Treasurer—Dr. Satyananda Chatterjee; Member of Central Council—Dr. Biswanath Ghosh; Alternate Member—Dr. Shib Narayan Chatterjee; Members of State Council—Drs. Shib Narayan Chatterjee, Biswanath Ghosh, Alak Kumar Banerjee and Khagendra Nath Paria.

KERALA STATE BRANCH

Tellicherry Branch—At the annual meeting held on 30-10-77 at the new IMA Building on Court Road, Tellicherry, the following were elected office-bearers for 1977-78; President—Dr. A. K. Menon; Vice-Presidents—Dr. V. Bharathan and Dr. P. U. Aboobaker; Hony. Secretary—Dr. P. V. George; Jt. Secretary and Treasurer—Dr. Albert Kallat; Auditor—Dr. Jacob Job; Member of State Working Committee—Dr. M. Mohammad; Member of Central Working Committee—Dr. T. K. Narayanan; Members of Executive Committee—Drs. K. K. Pokker, K. M. Ramakrishnan, M. A. Sundram, A. J. Jose and P. K Narayanan

MAHARASHTRA STATE BRANCH

Mulund Branch—The annual general meeting was held at Nagrik Sabha Library Hall on 28—10-77. The following were elected office-bearers for 1977-78: President—Dr. P. P. Shah; Vice-Presidents—Drs. T. K. Bich, R. P. Gupta and (Mrs.) Leela M. Khandekar; Hony Secretary—Dr. A. B. Vora; Treasurer—Dr. Jayesh Lalan; Jt. Secretaries—Drs. G. D. Shah, B. L. Jain and P. V. Gor; Members—Drs. M. G. Khandekar, M. T. Rajdeo, D. G. Thakker, A. M. Pradhan, A. Castelino, G. K. Thakker, K. M. Thakkar, B. K. Gor and K. D. Tolani; Member of Central Council—Dr. K. M. Thakkar; Member of State Council—Dr. M. G. Khandekar.

ORISSA STATE BRANCH

Puri Branch—At the annual general meeting held on 12-10-77 the following were elected office-bearers for 1977-78: President—Dr. Satyabadi Rath; Vice-Presidents—Dr. B. B. Das and Dr. Balakrushna Mahanti; Hony. Secretary and Treasurer—Dr. Ravindra Kumar Panda; Jt. Secretaries—Dr. Bidyadhar Mishra and Dr. Seva Mahapatra; Auditor—Dr. F. N. Nayak; Members of the Executive Committee—Drs. D. N. Dutta, K. C. Mahanti, M. M. Tripathi and P. K. Mukherjee; Member of State Working Committee—Dr. Baidyanath Mishra.

RAJASTHAN STATE BRANCH

Jaipur Branch—At a meeting held on 26-10-77 it was decided to hold the one-day conference of the branch on 4-12-77. A 16-man preparatory committee was formed with Dr. G. C. Sarma as Chief Patron, Dr. B. M. Sarma and Dr. Rupchand Raj Purohit as Patrons; Dr. G.P. Sethi and Dr. Gopinath Purohit as Chairman and Vice-Chairman respectively of the Reception Committee and Dr. Virendra Singh as Organising Secretary. It was also decided to start a medicine bank for the benefit of poor patients of the Jaipur city on the same day. A sub-committee was formed under the leadership of Dr. K. S. Ratna and with the following members to undertake a drive for increasing the membership of the branch: Drs. Virendra Singh, Prakash Chhablani, R. K. Madhok, R. P. Garg, and Asoke Kangaria.

TAMIL NADU STATE BRANCH

Erode Branch—At the annual meeting held on 30-10-77 the following were elected office-bearers for 1977-78: President—Dr. P. Gurumurthi; Vice-President—Dr. V. Palaniappan; Hony. Secretary—Dr. A. Sundararajan; Joint Secretary—Dr. Raghavendra Rao; Treasurer—Dr. N. B. Sambamurthy; Members of the Central Council—Dr. K. Balasubramaniam and Dr. L. K. Muthuswamy.

Nilgiris Branch—At the annual general meeting held on 20-10-77 the following were elected office-bearers for 1977-78: President—Dr. B. S. Ramakrishnaiah; Vice-Presidents—Dr. B. Padmanabhan and Dr. M. A. Urumis; Hony. Secretary—Dr. P. K. Ramachandran; Associate Secretary—Dr. K Chandrasekharan; Treasurer—Dr. A. N. Ananda Raj; Member of Central Council—Dr. B. Padmanabhan.

Pattukottai Branch—At the annual meeting held on 16-10-77 the following were elected office-bearers for 1977-78: President—Dr. E. K. Sambamurthi; Vice-President—Dr. T. G. Bhargavi; Hony. Secretary and Treasurer—Dr. (Mrs.) Niloufer Khader, Member of Central Council—Dr. T. A. K. Rathinam.

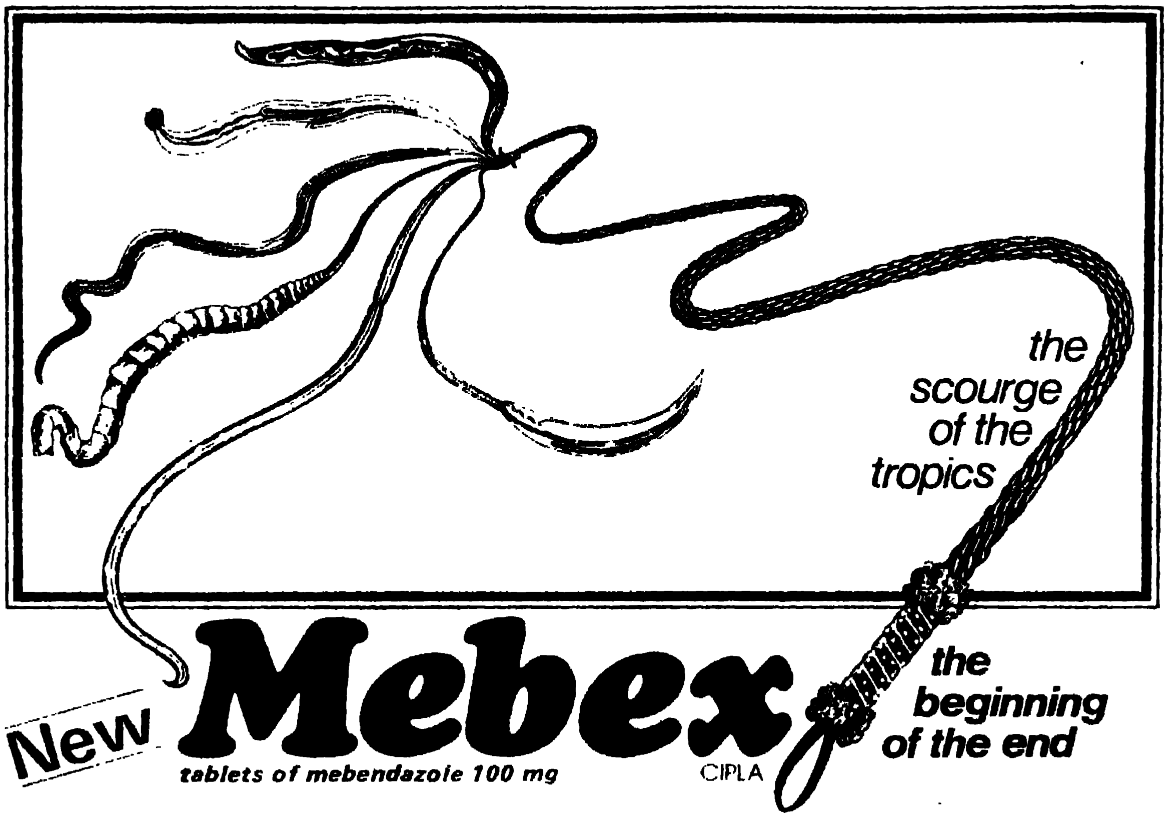
38th Bihar State Medical Conference: Ranchi: 1978

The 38th Bihar State Medical Conference will be held under the auspices of Jagannathnagar Branch of IMA at the Heavy Engineering Corporation township at Ranchi on 18—20 November, 1978. Detailed information may be had from Dr. S. K. Sinha, Organising Secretary, 38th Bihar State Medical Conference, E 219 Sector 2, Ranchi 4, Bihar.

43rd UP State Medical Conference: Allahabad: 1978

Dr. B. K. Kapoor, Hony. State Secretary, IMA, UP State Branch, informs:

The 43rd Uttar Pradesh State Medical Conference, will be held at M. L. N. Medical College, Allahabad, on October 21—22, 1978. Dr. R. Prasad, Joint Director, Medical & Health Services, UP and President-elect for the year 1978-79, will preside. Detailed information may be had from Dr. S. R. Singh, Organising Secretary, 43rd UP State Medical Conference, 1 Professors' Residence, M.L.N. Medical College, Allahabad, UP.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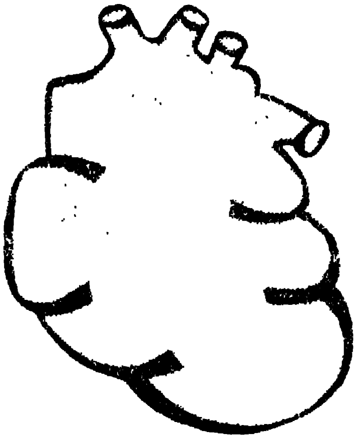

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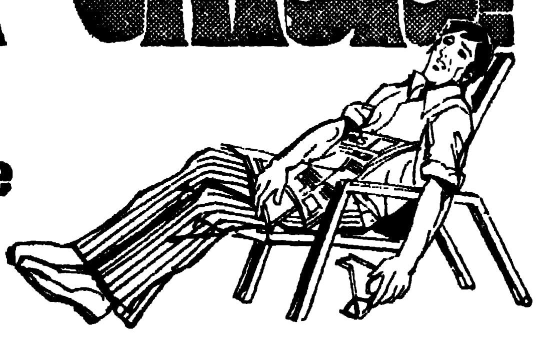

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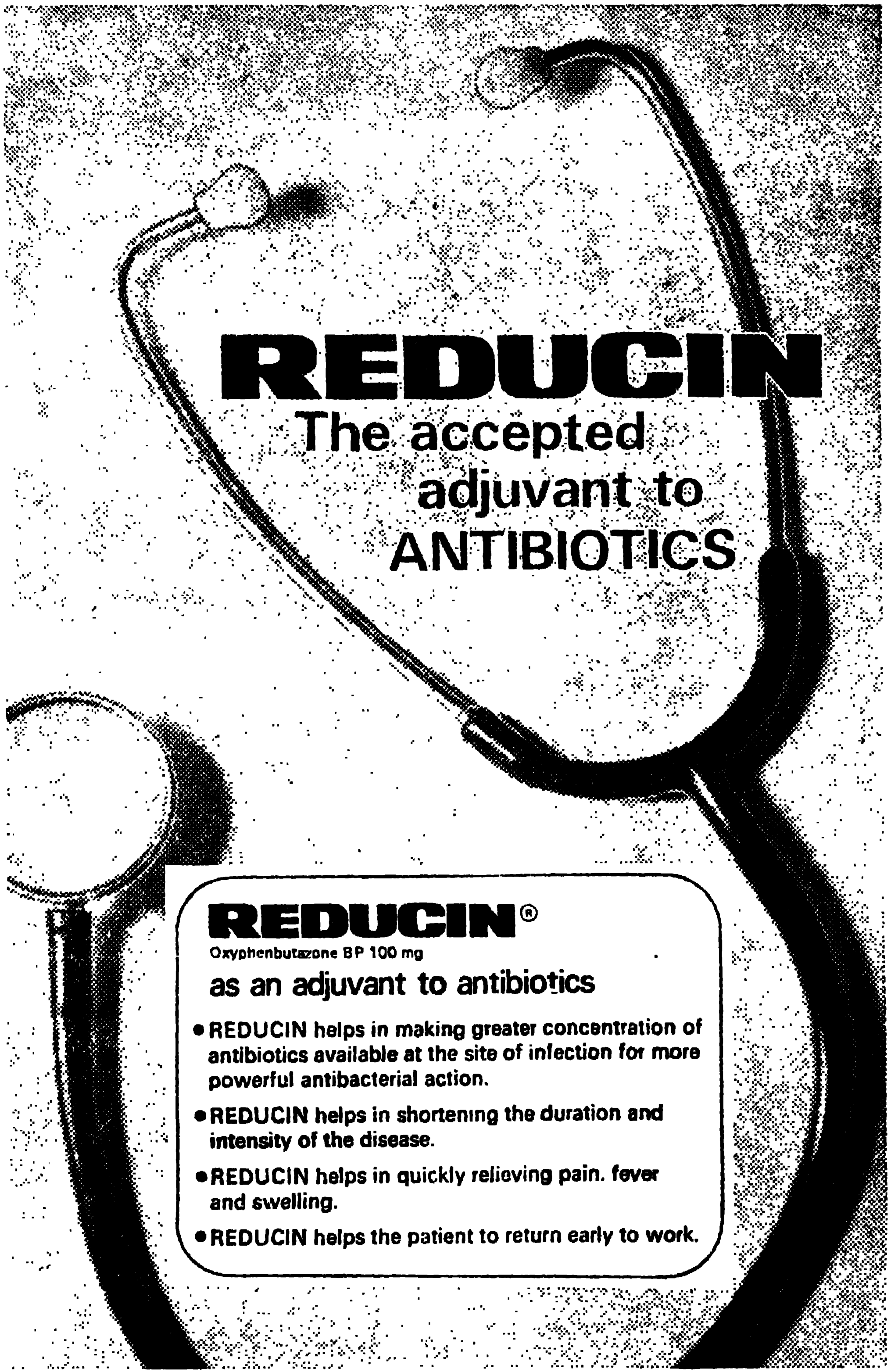
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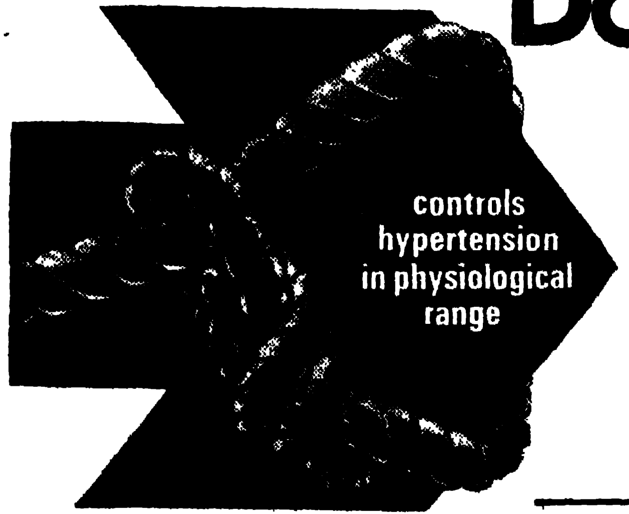

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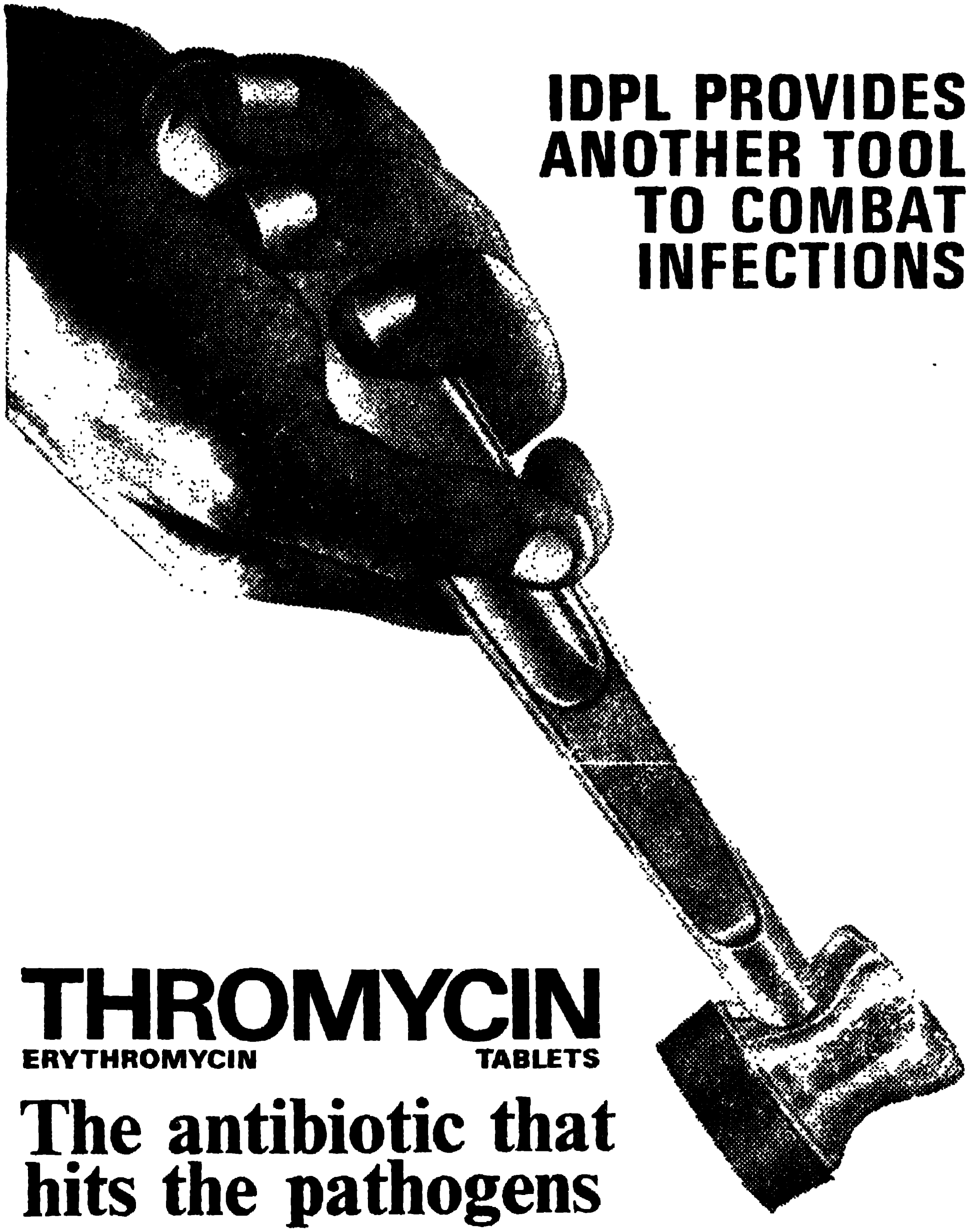

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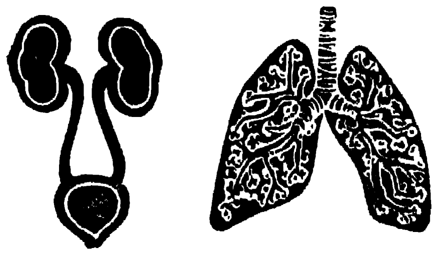

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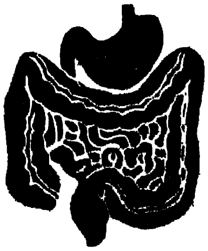

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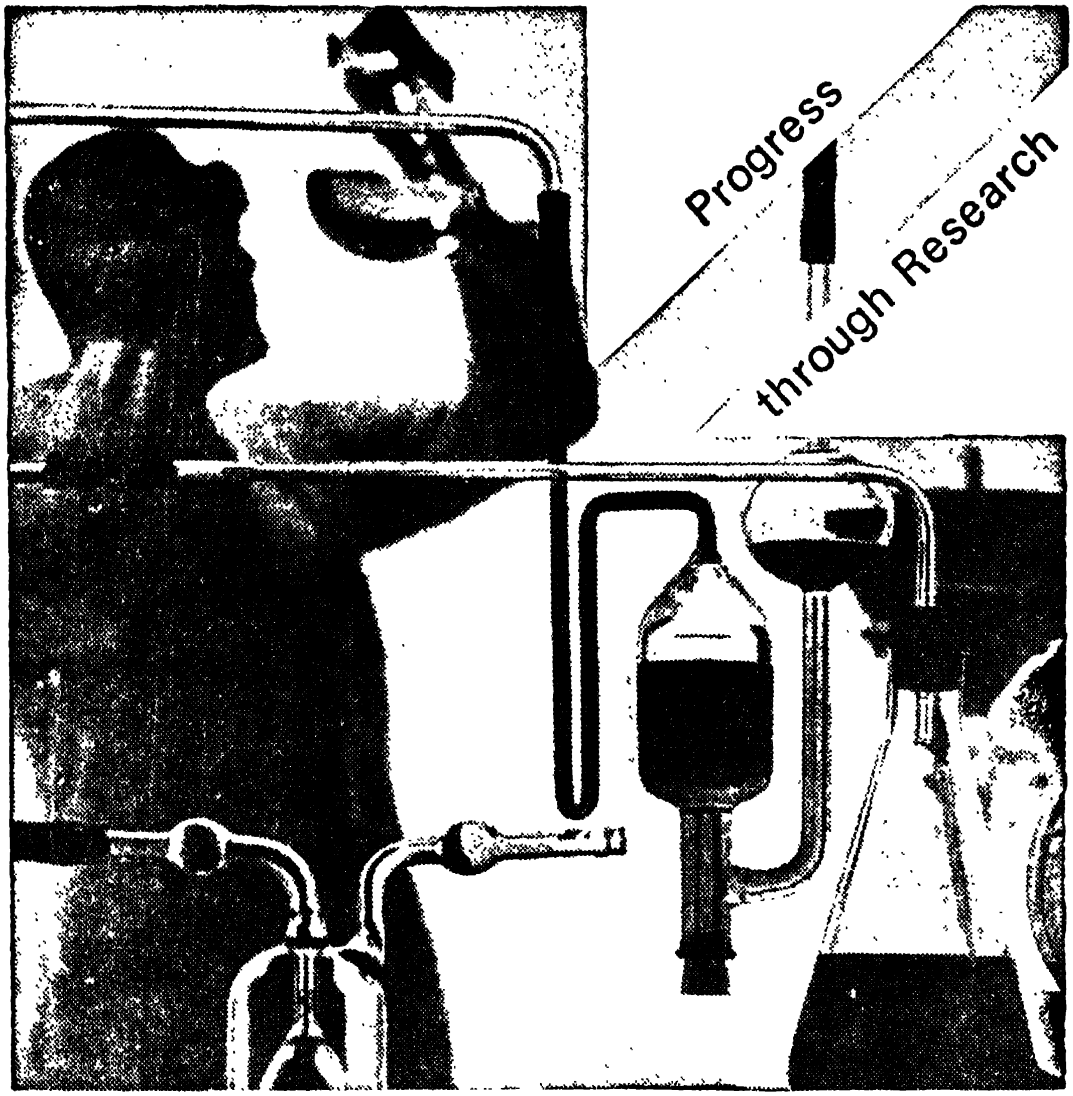

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